SEQUENCE LISTING

<110> Kletzien, Rolf F
Reardon, Ilene M
Weiland, Katherine L

<120> HUMAN CASPASE-12 MATERIALS AND METHODS

<130> 28341/00233

<140>
<141> 2000-05-09

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<170> PatentIn Ver. 2.0

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Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
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aag ttt gtg gtg agc aat gct gaa aac ctg gtt gat gat atc act gag  192
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aca gct caa att gca ggc aaa ata ttt agg gaa cac ctg tgg aat tcc  240
Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65                  70                  75                  80

aaa aaa cag ctg agt tca gat ata tcc agt gat gga gaa aga gag gcg  288
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aac atg cct ggc ctc aac atc cgc aac aaa gaa ttc aac tat ctt cat  336
Asn Met Pro Gly Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
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tgaaagacaa acccaaggtc atcatcatgc aagcctgccg aggcaatggt gctgggattg 682

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Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
             20                  25                  30

Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
         35                  40                  45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
     50                  55                  60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
 65                  70                  75                  80

Lys Lys Gln Leu Ser Ser Asp Ile Ser Ser Asp Gly Glu Arg Glu Ala
                 85                  90                  95

Asn Met Pro Gly Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
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ttg ctg atc aag acc ttt cta gat ggc att ttt gat gat ttg atg gaa   96
Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
            20                  25                  30

aat aat gtg tta aat aca gat gag ata cac ctt ata gga aaa tgt cta  144
Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
        35                  40                  45

aag ttt gtg gtg agc aat gct gaa aac ctg gtt gat gat atc act gag  192
Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
    50                  55                  60

aca gct caa att gca ggc aaa ata ttt agg gaa cac ctg tgg aat tcc  240
Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65                  70                  75                  80

aaa aaa cag ctg agt tca gat ata tcc agt gat gga gaa aga gag gcg  288
Lys Lys Gln Leu Ser Ser Asp Ile Ser Ser Asp Gly Glu Arg Glu Ala
                85                  90                  95

aac atg cct ggc ctc aac atc cgc aac aaa gaa ttc aac tat ctt cat  336
Asn Met Pro Gly Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
            100                 105                 110

aat cga aat ggt tct gaa ctt gac ctt ttg ggg atg nnn gat cta ctt  384
Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Xaa Asp Leu Leu
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gaa aac ctt gga tac tca gtg gtt ata aaa gag aat ctc aca gct cag  432
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    130                 135                 140

gaa atg gaa aca gca cta agg cag ttt gct gct cac cca gag cac cag  480
Glu Met Glu Thr Ala Leu Arg Gln Phe Ala Ala His Pro Glu His Gln
145                 150                 155                 160

tcc tca gac agc aca ttc ctg gtg ttt atg tca cat agc atc ctg aat  528
Ser Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Ser Ile Leu Asn
                165                 170                 175

gga atc tgt ggg acc aag cac tgg gat caa gag cca gat gtt ctt cac  576
Gly Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp Val Leu His
            180                 185                 190

gat gac acc atc ttt gaa att ttc aac aac cgt aac tgc cag agt ctg  624
Asp Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys Gln Ser Leu
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225                 230                 235                 240

act cat ggt cgg ctc ttg caa ggt aac atc tgt aat gat gct gtt aca   768
Thr His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr
                245                 250                 255

aag gct cat gtg gaa aag gac ttc att gct ttc aaa tct tcc aca cca   816
Lys Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro
            260                 265                 270

cat aat gtt tct tgg aga cat gaa aca aat ggc tct gtc ttc att tcc   864
His Asn Val Ser Trp Arg His Glu Thr Asn Gly Ser Val Phe Ile Ser
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caa att atc tac tac ttc aga gag tat tct tgg agt cat cat cta gag   912
Gln Ile Ile Tyr Tyr Phe Arg Glu Tyr Ser Trp Ser His His Leu Glu
    290                 295                 300

gaa att ttt caa aag gtt caa cat tca ttt gag acc cca aat ata ctg   960
Glu Ile Phe Gln Lys Val Gln His Ser Phe Glu Thr Pro Asn Ile Leu
305                 310                 315                 320

acc cag ctg ccc acc att gaa aga cta tcc atg aca cga tat ttc tat  1008
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Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
        35                  40                  45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
    50                  55                  60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65                  70                  75                  80

Lys Lys Gln Leu Ser Ser Asp Ile Ser Ser Asp Gly Glu Arg Glu Ala
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Asn Met Pro Gly Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
            100                 105                 110

Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Xaa Asp Leu Leu
        115                 120                 125

Glu Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln
    130                 135                 140

Glu Met Glu Thr Ala Leu Arg Gln Phe Ala Ala His Pro Glu His Gln
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Ser Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Ser Ile Leu Asn
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Gly Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp Val Leu His
            180                 185                 190

Asp Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys Gln Ser Leu
        195                 200                 205

Lys Asp Lys Pro Lys Val Ile Ile Met Gln Ala Cys Arg Gly Asn Gly
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Ala Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp
225                 230                 235                 240

Thr His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr
                245                 250                 255

Lys Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro
            260                 265                 270

His Asn Val Ser Trp Arg His Glu Thr Asn Gly Ser Val Phe Ile Ser
        275                 280                 285

Gln Ile Ile Tyr Tyr Phe Arg Glu Tyr Ser Trp Ser His His Leu Glu
    290                 295                 300

Glu Ile Phe Gln Lys Val Gln His Ser Phe Glu Thr Pro Asn Ile Leu
305                 310                 315                 320

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Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
20 25 30

aat aat gtg tta aat aca gat gag ata cac ctt ata gga aaa tgt cta 144
Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
35 40 45

aag ttt gtg gtg agc aat gct gaa aac ctg gtt gat gat atc act gag 192
Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
50 55 60

aca gct caa att gca ggc aaa ata ttt agg gaa cac ctg tgg aat tcc 240
Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65 70 75 80

aaa aaa cag ctg agt tca gat ata tcc agt gat gga gaa aga gag gcg 288
Lys Lys Gln Leu Ser Ser Asp Ile Ser Ser Asp Gly Glu Arg Glu Ala
85 90 95

aac atg cct ggc ctc aac atc cgc aac aaa gaa ttc aac tat ctt cat 336
Asn Met Pro Gly Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
100 105 110

aat cga aat ggt tct gaa ctt gac ctt ttg ggg atg tgagatctac 382
Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met
115 120

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tgtttatgtc acatagcatc ctgaatggaa tctgtgggac caagcactgg gatcaagagc 562

cagatgttct tcacgatgac accatctttg aaattttcaa caaccgtaac tgccagagtc 622

tgaaagacaa acccaaggtc atcatcatgc aagcctgccg aggcaatggt gctgggattg 682

tttggttcac cactgacagt ggaaaagcca gtgcagatac tcatggtcgg ctcttgcaag 742

gtaacatctg taatgatgct gttacaaagg ctcatgtgga aaaggacttc attgctttca 802

aatcttccac accagttcaa cattcatttg agaccccaaa tatactgacc cagctgccca 862

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Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
            35                  40                  45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
        50                  55                  60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
 65                  70                  75                  80

Lys Lys Gln Leu Ser Ser Asp Ile Ser Ser Asp Gly Glu Arg Glu Ala
                85                  90                  95

Asn Met Pro Gly Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
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ttg ctg atc aag acc ttt cta gat ggc att ttt gat gat ttg atg gaa   96
Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
            20                  25                  30

aat aat gtg tta aat aca gat gag ata cac ctt ata gga aaa tgt cta   144
Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
        35                  40                  45

aag ttt gtg gtg agc aat gct gaa aac ctg gtt gat gat atc act gag   192
Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
    50                  55                  60

aca gct caa att gca ggc aaa ata ttt agg gaa cac ctg tgg aat tcc   240
Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65                  70                  75                  80
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aaa aaa cag ctg agt tca gat ata tcc agt gat gga gaa aga gag gcg   288
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                 85                  90                  95

aac atg cct ggc ctc aac atc cgc aac aaa gaa ttc aac tat ctt cat   336
Asn Met Pro Gly Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
            100                 105                 110

aat cga aat ggt tct gaa ctt gac ctt ttg ggg atg nnn gat cta ctt   384
Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Xaa Asp Leu Leu
        115                 120                 125

gaa aac ctt gga tac tca gtg gtt ata aaa gag aat ctc aca gct cag   432
Glu Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln
    130                 135                 140

gaa atg gaa aca gca cta agg cag ttt gct gct cac cca gag cac cag   480
Glu Met Glu Thr Ala Leu Arg Gln Phe Ala Ala His Pro Glu His Gln
145                 150                 155                 160

tcc tca gac agc aca ttc ctg gtg ttt atg tca cat agc atc ctg aat   528
Ser Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Ser Ile Leu Asn
                165                 170                 175

gga atc tgt ggg acc aag cac tgg gat caa gag cca gat gtt ctt cac   576
Gly Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp Val Leu His
            180                 185                 190

gat gac acc atc ttt gaa att ttc aac aac cgt aac tgc cag agt ctg   624
Asp Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys Gln Ser Leu
        195                 200                 205

aaa gac aaa ccc aag gtc atc atc atg caa gcc tgc cga ggc aat ggt   672
Lys Asp Lys Pro Lys Val Ile Ile Met Gln Ala Cys Arg Gly Asn Gly
    210                 215                 220

gct ggg att gtt tgg ttc acc act gac agt gga aaa gcc agt gca gat   720
Ala Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp
225                 230                 235                 240

act cat ggt cgg ctc ttg caa ggt aac atc tgt aat gat gct gtt aca   768
Thr His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr
                245                 250                 255

aag gct cat gtg gaa aag gac ttc att gct ttc aaa tct tcc aca cca   816
Lys Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro
            260                 265                 270

cgt tca aca ttc att tga gac ccc aaa tat act gac cca gct gcc cac   864
Arg Ser Thr Phe Ile     Asp Pro Lys Tyr Thr Asp Pro Ala Ala His
        275                 280                 285

cat tga aag act atc cat gac acg ata ttt cta tct ctt tcc tgg gaa   912
His     Lys Thr Ile His Asp Thr Ile Phe Leu Ser Leu Ser Trp Glu
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Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
35 40 45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
50 55 60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65 70 75 80

Lys Lys Gln Leu Ser Ser Asp Ile Ser Ser Asp Gly Glu Arg Glu Ala
85 90 95

Asn Met Pro Gly Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
100 105 110

Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Xaa Asp Leu Leu
115 120 125

Glu Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln
130 135 140

Glu Met Glu Thr Ala Leu Arg Gln Phe Ala Ala His Pro Glu His Gln
145 150 155 160

Ser Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Ser Ile Leu Asn
165 170 175

Gly Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp Val Leu His
180 185 190

Asp Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys Gln Ser Leu
195 200 205

Lys Asp Lys Pro Lys Val Ile Ile Met Gln Ala Cys Arg Gly Asn Gly
210 215 220

Ala Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp
225 230 235 240

Thr His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr
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Arg Ser Thr Phe Ile
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atacacctta taggaaaatg tctaaagttt gtggtgagca atgctgaaaa cctggttgat 180

gatatcactg agacagctca aattgcaggc aaaatattta gggaacacct gtggaattcc 240

aaaaaacagc tgagttcaga tatatccagt gatggagaaa gagaggcgaa catgcctggc 300

ctcaacatcc gcaacaaaga attcaactat cttcataatc gaaatggttc tgaacttgac 360

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ctcacagctc agatggtgct gggattgttt ggttcaccac tgacagtgga aaagccagtg 480

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aaaaaacagc tgagttcaga tatatccagt gatggagaaa gagaggcgaa catgcctggc 300

ctcaacatcc gcaacaaaga attcaactat cttcataatc gaaatggttc tgaacttgac 360

cttttgggga tgtgagatct acttgaaaac cttggatact cagtggttat aaaagagaat 420

ctcacagctc agatggtgct gggattgttt ggttcaccac tgacagtgga aaagccagtg 480

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atgtggaaaa ggacttcatt gctttcaaat cttccacacc acgttcaaca ttcatttgag 600

accccaaata tactgaccca gctgcccact attgaaagac tatccatgac acgatatttc 660

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<213> Homo sapiens

<400> 17
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<210> 18
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<213> Homo sapiens

<400> 18
tcatatatcc agtgatggag aaagag 26

<210> 19
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<212> DNA
<213> Homo sapiens

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cttgggaaat gaagacagag ccat 24

<210> 20
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<213> Homo sapiens

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acccaggaat atctctggaa gca 23

<210> 21
<211> 23
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<213> Homo sapiens

<400> 21
ccactcagct gttttttgga att 23

<210> 22
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<212> DNA
<213> Homo sapiens

<400> 22
cctgaatgga atctgtggga ccaagcac 28

<210> 23
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<400> 23
gtgcttggtc ccacagattc cattcagg 28

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<210> 25
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<400> 25
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<210> 26
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<213> Homo sapiens

<400> 26
ttgcctgcaa tttgagctgt ctcagtg 27

<210> 27
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<400> 27
gccatggctg atgagaaacc atcc 24

<210> 28
<211> 33
<212> DNA
<213> Homo sapiens

<400> 28
tttaattccc aggaaagaga tagaaatatc gtg 33

<210> 29
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<212> DNA
<213> Homo sapiens

<400> 29
gtgatatcat caaccaggtt ttcagc 26

<210> 30
<211> 292
<212> DNA
<213> Homo sapiens

<400> 30
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ggagccatta cctgagctgt gagattctct tttataacca ctgagtatcc aaggttttca 120

agtagatctc acatccccaa aaggtcaagt tcagaaccat ttcgattatg aagatagttg 180

aattctttgt tgcggatgtt gaggccaggc atgttccgcc tctctttctc catcactgga 240

tatatctgca attaatacac acagaatgac tttccccagg acttttctct tt 292

<210> 31
<211> 686
<212> DNA
<213> Homo sapiens

<400> 31
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cagtctgaca tggagtgtca attctaagag gtagtgtaca acgttgagaa gacagaatac 120

ccatgggctt ggtcctatga aacctgcaaa ctctcttcat tccaggactt tcctggttca 180

tggtggaaga tgctttctga gacttgaaaa gagtcgtatc tcatctatag cctactttct 240

ttttcaggtt cagcaagcat ttgaaagtcc cggaggcaac agtccaaatg cccaccatag 300

aacgagtgtc catgacaaga tatttctacc tctttcctgg caattgaaaa tggttaagca 360

ttgagagttg ttggtggtgt atgaaataaa tgaaagtgtg atattggagg tgagttccga 420

tgaccaatga cagttgagta cttggatggc caaattagtg tactttgttg atgtagtctg 480

gtgattgatt atctggtatc ttttattcga tttttttgc atttgggtt cccccaactc 540

tataattaat caggcaatca atcaatcaag gacgtaagga aaaccaaggc caaatgagat 600

aataaaaaac ccagggtagc acttattaaa atagaaacat actcctgcat ccattactat 660

ttatattcat tacatctcat actcta 686

<210> 32
<211> 533
<212> DNA
<213> Homo sapiens

<400> 32
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cccattctca cctatcaaat aaaaattatt tggactagga tgcaggaagc tctgcttact 120

aagctttcta ggtgattctt atgcacgtta aaatttggga accactaccc tagaatgggg 180

atctaaagtt ctgtccatat ctaagattct atcattttca cagatgagaa accatccaac 240

ggtgttctgg tccacatggt gaagttgctg atcaagacct ttctagatgg catttttgat 300

gatttgatgg aaaataatgt gttaaataca gatgagatac accttatagg aaaatgtcta 360

aagtttgtgg tgagcaatgc tgaaaacctg gttgatgata tcactgagac agctcaaatt 420

gcaggcaaaa tatttaggga acacctgtgg aattccaaaa aacagctgag ttcaggtgag 480

tattgggggc taacagctag aaattcattc ttattctttc tctactcttc tta 533

<210> 33
<211> 563
<212> DNA
<213> Homo sapiens

<400> 33
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cacaaatggt tctccaaagt tttctggggc ataacattga aaataaaaga agaccctacc 120

ttttgaaaaa tttcctctag atgatgactc caagaatact ctctgaagta gtagataatt 180

tgggaaatga agacagagcc atttgtttca tgtctccaag aaacattatc tacaaataaa 240

aggcatcaaa atattggagg atgtgatctt ttatacatgt ggaagactcc tggagacata 300

actttgggaa aaaaaatctg attttgtttc tttggagaag agagggaaac caatgctaaa 360

taaagatgga cctccaactt ccataccagg cccagaaaaa gccatcatgg gaccttcctc 420

actcataaat caccttgatt ttctagtagg ctagaccgaa gtgatatcct ctgggtttgc 480

aagtagtgga aaagagtgta agtcctttca gcactaacta cataacagaa aaataataca 540

gccttgacat tccttgattc tgg 563

<210> 34
<211> 528
<212> DNA
<213> Homo sapiens

<400> 34
tatgtctatg catatgtgta tgtgcgtgtg tatgtgtatg tgtgtgcata tgtggatgtt 60

tgtgcatatg agtatgtgtg tgcatatgtg tatgtgtgtg tgtatgtgta tgtgtgtgta 120

tttataaata tctcttcttt aatgagacat aatgtctctc ccagatggtg ctgggattgt 180

ttggttcacc actgacagtg gaaaagccag tgcagatact catggtcggc tcttgcaagg 240

taacatctgt aatgatgctg ttacaaaggc tcatgtggaa aaggacttca ttgctttcaa 300

atcttccaca ccacgtaagt gatttcagag agaataattt ctaaatttct tagtaggttt 360

ctagatagta ggcttggcta tgatcatatc ttatcaccga acagagcatt tcttctctaa 420

ttaccaggat attttaggtg gagaaaagat ttaaaatgct gagactttca taattagaaa 480

gctataaatc ttgatttggg aagaaacgtt caaagttaac aggacttt 528

<210> 35
<211> 555
<212> DNA
<213> Homo sapiens

<400> 35
tccttactca taaaactctg tagctaagtt aattacacat ataatcacac atctaatatc 60

aagtatgggg cagaagaaag cccaggcctt gaaacagctc cttcattccc gtgatgtcga 120

agtgagcccc attccttgga gtcagatagt caaactttgt attgcttata atgagagcca 180

ggtatttgca gatctttctg ttttttttttt tattagattg atctgcagga gatggagatg 240

aaatgacttt gattacctga gtctcttttc aatctccata tgtttcacaa ttttgttttt 300

ttaaaacctc gtatagctgc cctcttccct aacctctatc aaaagacact gctttcctct 360

ctctcaagag cccagagcaa gaaccaggac atatctggat gattagtcaa gaatcttaaa 420

gaaactagaa taattcctac tccctttctt cttatttttc ttctgcatct actcaaacat 480

ttcttatatt caggttcaaa tcaaatttca taaaaactga gagatgtcat ctgcaccagt 540

aaaaatgaat atagc 555

<210> 36
<211> 532
<212> DNA
<213> Homo sapiens

<400> 36
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aaacatatgg aggattgaaa aggagactca ggtaatcaaa gtcatttcat ctccatctcc 120

tgcagatcaa tctaataaaa aaaaaaacag aaagatctgc aaatacctgg ctctcattat 180

aagcaatata aagtttgact atctgactcc aagggaatgg ggctcacttc gacatcacgg 240

gaatgaagga gctgtttcaa ggcctgggct tcttctgccc catacttgat attagatgtg 300

tgattatatg tgtaattaac ttagctacag agttttatga gtaaggagag ttaagcctag 360

caatttttgta atatagtaag aactacatga catgatatat gtagaaaact aattatagtt 420

ctgttcatac ttaaattgct caataaagat aatgatggca acaatgatag tggtgatgtt 480

gatgatgata atgacgcaat ttggttgacc atgaaatagg aggagtcagc ca 532

<210> 37
<211> 576
<212> DNA
<213> Homo sapiens

<400> 37
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tttcttcatc ttttggagcc tctattcctt cctctgtaaa gtgggataat tccagttatt 180

tctcaagccc ctataaaagc caagagaata aacacaatgt ttgtagtaga aagtcagtcc 240

caagaatcaa aatacaatca ctacacaatc tcttgcaatg cttacaaact gcacctttttg 300

atcaactgtt gctaggtttt ttgttgactt tatgcggaaa gtggttaaat gtaaggttgt 360

aaacatgtcg tccaaatctg taaagataat tcccaagcta tgcttttatt aaaaaaaaaa 420

tcctcaaaac aaaaatgtaa acaaaaaata gtgaaggtca tagcccaaga catacccatc 480

tgtatcatca tagataacgt gtccaggaga gacagcacaa ggggctccat cttcatcaca 540

caactcatcg catgcttcca gagatattcc tggcgc 576

<210> 38
<211> 611
<212> DNA
<213> Homo sapiens

<400> 38
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cctcggcagg cttgcatgat gatgaccttg ggtttgtctt tcagactctg gcagttacgg 120

ttgttgaaaa tttcaaagta tggtgtcatc gtgaagaaca tctggctctt gatcccagtg 180

cttggtccca cagattccat tcaggatgct atgtgacata aacaccagga atgtgctgtc 240

tgaggactgg tgctctgggt gagcagcaaa ctgccttagt gctgtttcca tttcctgaaa 300

gagacccttg agtcactatc gaggaagtct ccatgtgtat gtagtttgta atcaaataat 360

gggtagggtt cacaaaaagg agccagcact aaggaatcag atggtttaga ctgaatagga 420

ttataagata aacagtgttc tgacataaaa ctagaaaatt tagctgtata gaatattaaa 480

gttagtaggg tttttatgta gtatcttgcc cagtggtttt tagtaaaacc ttaggtttct 540

gaagatgctg ggagatggaa taaaatgaag gccaagtgag atgacaatac accaatagga 600

ccattttgct a 611

<210> 39
<211> 76
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<400> 39
Arg Glu Lys Ser Trp Gly Lys Ser Phe Cys Val Tyr Leu Gln Ile Tyr
1 5 10 15

Pro Val Met Glu Lys Glu Arg Arg Asn Met Pro Gly Leu Asn Ile Arg
20 25 30

Asn Lys Glu Arg Asn Tyr Leu His Asn Arg Asn Gly Ser Glu Leu Asp
35 40 45

Leu Leu Gly Met Asp Leu Leu Glu Asn Leu Gly Tyr Ser Val Val Ile
50 55 60

Lys Glu Asn Leu Thr Ala Gln Val Met Ala Pro Glu
65 70 75

<210> 40
<211> 47
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<400> 40
His Leu Pro Thr Phe Phe Phe Arg Phe Ser Lys His Leu Lys Val Pro
1 5 10 15

Glu Ala Thr Val Gln Met Pro Thr Ile Glu Arg Val Ser Met Thr Arg
20 25 30

Tyr Phe Tyr Leu Phe Pro Gly Asn Lys Trp Leu Ser Ile Glu Ser
35 40 45

<210> 41

<211> 177
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> misc_feature
<222>
<223> Xaa = any amino acid or no amino acid

<400> 41
Val Leu Ala Pro Glu Ala Leu Ala Ser Pro Glu Lys Leu Leu Xaa Met
1 5 10 15

Lys Ile His Gly Pro Ile Leu Thr Tyr Gln Ile Lys Ile Ile Trp Thr
20 25 30

Arg Met Gln Glu Ala Leu Leu Thr Lys Leu Ser Arg Xaa Phe Leu Cys
35 40 45

Thr Leu Lys Phe Gly Asn His Tyr Pro Arg Met Gly Ile Xaa Ser Ser
50 55 60

Val His Ile Xaa Asp Ser Ile Ile Phe Thr Asp Glu Lys Pro Ser Asn
65 70 75 80

Gly Val Leu Val His Met Val Lys Leu Leu Ile Lys Thr Phe Leu Asp
85 90 95

Gly Ile Phe Asp Asp Leu Met Glu Asn Asn Val Leu Asn Thr Asp Glu
100 105 110

Ile His Leu Ile Gly Lys Cys Leu Lys Phe Val Val Ser Asn Ala Glu
115 120 125

Asn Leu Val Asp Asp Ile Thr Glu Thr Ala Gln Ile Ala Gly Lys Ile
130 135 140

Phe Arg Glu His Leu Trp Asn Ser Lys Lys Gln Leu Ser Ser Gly Glu
145 150 155 160

Tyr Trp Gly Leu Thr Ala Arg Asn Ser Phe Leu Phe Phe Leu Tyr Ser
165 170 175

Ser

<210> 42
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> misc_feature
<222>
<223> Xaa = any amino acid or no amino acid

<400> 42
Met Ser Pro Gly Val Phe His Met Tyr Lys Arg Ser His Pro Pro Ile
1 5 10 15

Phe Xaa Cys Leu Leu Phe Val Asp Asn Val Ser Trp Arg His Glu Thr
20 25 30

Asn Gly Ser Val Phe Ile Ser Gln Ile Ile Tyr Tyr Phe Arg Glu Tyr
35 40 45

Ser Trp Ser His His Leu Glu Glu Ile Phe Gln Lys Val Gly Ser Ser
50 55 60

Phe Ile Phe Asn Val Met Pro Gln Lys Thr Leu Glu Asn His Leu Xaa
65 70 75 80

Ile Phe Ile Arg Asn Pro Lys Ala Leu Asn Ser Ser Xaa Gln Ser Phe
85 90 95

Leu Thr Pro

<210> 43
<211> 99
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> misc_feature
<222>
<223> Xaa = any amino acid or no amino acid

<400> 43
Cys Val Cys Met Cys Met Cys Val Tyr Leu Xaa Ile Ser Leu Leu Xaa
1 5 10 15

Asp Ile Met Ser Leu Pro Asp Gly Ala Gly Ile Val Trp Phe Thr Thr
20 25 30

Asp Ser Gly Lys Ala Ser Ala Asp Thr His Gly Arg Leu Leu Gln Gly
35 40 45

Asn Ile Cys Asn Asp Ala Val Thr Lys Ala His Val Glu Lys Asp Phe
50 55 60

Ile Ala Phe Lys Ser Ser Thr Pro Arg Lys Xaa Phe Gln Arg Glu Xaa
65 70 75 80

Phe Leu Asn Phe Leu Val Gly Phe Xaa Ile Val Gly Leu Ala Met Ile
85 90 95

Ile Ser Tyr

<210> 44
<211> 50

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:peptide

<220>
<221> misc_feature
<222>
<223> Xaa = any amino acid or no amino acid

<400> 44
Ala Leu Ile Ile Ser Asn Thr Lys Phe Asp Tyr Leu Thr Pro Arg Asn
1 5 10 15

Gly Ala His Phe Asp Ile Thr Gly Met Lys Glu Leu Phe Gln Gly Leu
20 25 30

Gly Phe Leu Leu Pro His Thr Xaa Tyr Xaa Met Cys Asp Tyr Met Cys
35 40 45

Asn Xaa
50

<210> 45
<211> 47
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<400> 45
Ala Leu Ile Ile Ser Asn Thr Lys Phe Asp Tyr Leu Thr Pro Arg Glu
1 5 10 15

Trp Gly Ser Leu Arg His His Gly Asn Glu Gly Ala Val Ser Arg Pro
20 25 30

Gly Leu Leu Leu Pro His Thr Tyr Met Cys Asp Thr Met Cys Asn
35 40 45

<210> 46
<211> 48
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<400> 46
Leu Ser Leu Ala Ile Gln Ser Leu Thr Ile Leu Gln Gly Asn Gly Ala
1 5 10 15

His Phe Asp Ile Thr Gly Met Lys Glu Leu Phe Gln Gly Leu Gly Phe
20 25 30

Phe Cys Pro Ile Leu Asp Ile Arg Cys Val Ile Ile Cys Val Ile Asn
35 40 45

<210> 47
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<400> 47
Ser Lys Gln Lys Cys Lys Gln Lys Ile Val Lys Val Ile Ala Gln Asp
1 5 10 15

Ile Pro Ile Cys Ile Ile Ile Asp Asn Val Ser Arg Arg Asp Ser Thr
20 25 30

Arg Gly Ser Ile Phe Ile Thr Gln Ile Leu Ala Cys Phe Gln Arg Tyr
35 40 45

Ser Trp Arg
50

<210> 48
<211> 89
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<400> 48
Gly Ser Leu Leu Leu Thr Gln Ser Thr Ser Pro Gln Thr Ala His Ser
1 5 10 15

Trp Cys Leu Cys His Ile Ala Ser Met Glu Ser Val Gly Pro Ser Thr
20 25 30

Gly Ile Lys Ser Gln Met Phe Phe Thr Met Thr Pro Tyr Phe Glu Ile
35 40 45

Phe Asn Asn Arg Asn Cys Gln Ser Leu Lys Asp Lys Pro Lys Val Ile
50 55 60

Ile Met Gln Ala Cys Arg Gly Ser Glu Ser Pro Ile Arg Lys Leu Ile
65 70 75 80

Leu Ile Leu Arg Pro Gln Gly Gly Leu
85

<210> 49
<211> 92
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<400> 49

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Ile Leu Ser Tyr Ser Val Thr Ile Phe Leu Ser Ala Gly Ser Phe Leu
  1               5                  10                  15

Thr Leu Pro Ile Ile Leu Gln Thr Thr Tyr Thr Trp Arg Leu Pro Arg
            20                  25                  30

Leu Lys Gly Leu Phe Gln Glu Met Glu Thr Ala Leu Arg Gln Phe Ala
        35                  40                  45

Ala His Pro Glu His Gln Ser Ser Asp Ser Thr Phe Leu Val Phe Met
    50                  55                  60

Ser His Ser Ile Leu Asn Gly Ile Cys Gly Thr Lys His Trp Asp Gln
65                  70                  75                  80

Glu Pro Asp Val Leu His Asp Asp Thr Ile Leu Asn
                85                  90

<210> 50
<211> 1026
<212> DNA
<213> Homo sapien

<220>
<221> CDS
<222> (1)..(372)


<400> 50
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Met Ala Asp Glu Lys Pro Ser Asn Gly Val Leu Val His Met Val Lys
  1               5                  10                  15

ttg ctg atc aag acc ttt cta gat ggc att ttt gat gat ttg atg gaa   96
Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
            20                  25                  30

aat aat gtg tta aat aca gat gag ata cac ctt ata gga aaa tgt cta   144
Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
        35                  40                  45

aag ttt gtg gtg agc aat gct gaa aac ctg gtt gat gat atc act gag   192
Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
    50                  55                  60

aca gct caa att gca ggc aaa ata ttt agg gaa cac ctg tgg aat tcc   240
Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65                  70                  75                  80

aaa aaa cag ctg agt tca gat ata tcc agt gat gga gaa aga gag gcg   288
Lys Lys Gln Leu Ser Ser Asp Ile Ser Ser Asp Gly Glu Arg Glu Ala
                85                  90                  95

aac atg cct ggc ctc aac atc cgc aac aaa gaa ttc aac tat ctt cat   336
Asn Met Pro Gly Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
            100                 105                 110

aat cga aat ggt tct gaa ctt gac ctt ttg ggg atg tgagatctac        382
Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met
        115                 120

ttgaaaacct tggatactca gtggttataa aagagaatct cacagctcag gaaatggaaa 442
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cagcactaag gcagtttgct gctcacccag agcaccagtc ctcagacagc acattcctgg 502

tgtttatgtc acatagcatc ctgaatggaa tctgtgggac caagcactgg gatcaagagc 562

cagatgttct tcacgatgac accatctttg aaatttttcaa caaccgtaac tgccagagtc 622

tgaaagacaa acccaaggtc atcatcatgc aagcctgccg aggcaatggt gctgggattg 682

tttggttcac cactgacagt ggaaaagcca gtgcagatac tcatggtcgg ctcttgcaag 742

gtaacatctg taatgatgct gttacaaagg ctcatgtgga aaaggacttc attgctttca 802

aatcttccac accacataat gtttcttgga gacatgaaac aaatggctct gtcttcattt 862

cccaaattat ctactacttc agagagtatt cttggagtca tcatctagag gaaatttttc 922

aaaaggttca acattcattt gagaccccaa atatactgac ccagctgccc accattgaaa 982

gactatccat gacacgatat ttctatctct ttcctgggaa ttaa 1026

<210> 51
<211> 340
<212> PRT
<213> Homo sapiens

<400> 51

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Met Ala Asp Glu Lys Pro Ser Asn Gly Val Leu Val His Met Val Lys
1               5                  10                  15

Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
            20                  25                  30

Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
        35                  40                  45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
    50                  55                  60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65                  70                  75                  80

Lys Lys Gln Leu Ser Ser Ile Tyr Pro Val Met Glu Lys Glu Arg Arg
                85                  90                  95

Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
            100                 105                 110

Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Asp Leu Leu Glu
        115                 120                 125

Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln Glu
    130                 135                 140

Met Glu Thr Ala Leu Arg Gln Phe Ala Ala His Pro Glu His Gln Ser
145                 150                 155                 160

Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Ser Ile Leu Asn Gly
                165                 170                 175

Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp Val Leu His Asp
            180                 185                 190
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Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys Gln Ser Leu Lys
        195                 200                 205

Asp Lys Pro Lys Val Ile Ile Met Gln Ala Cys Arg Gly Asn Gly Ala
    210                 215                 220

Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp Thr
225                 230                 235                 240

His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr Lys
                245                 250                 255

Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro His
            260                 265                 270

Asn Val Ser Trp Arg His Glu Thr Asn Gly Ser Val Phe Ile Ser Gln
        275                 280                 285

Ile Ile Tyr Tyr Phe Arg Glu Tyr Ser Trp Ser His His Leu Glu Glu
    290                 295                 300

Ile Phe Gln Lys Val Gln His Ser Phe Glu Thr Pro Asn Ile Leu Thr
305                 310                 315                 320

Gln Leu Pro Thr Ile Glu Arg Leu Ser Met Thr Arg Tyr Phe Tyr Leu
                325                 330                 335

Phe Pro Gly Asn
            340
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<210> 52
<211> 1001
<212> DNA
<213> Homo sapiens

<400> 52

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atacacctta taggaaaatg tctaaagttt gtggtgagca atgctgaaaa cctggttgat    180

gatatcactg agacagctca aattgcaggc aaaatattta gggaacacct gtggaattcc    240

aaaaaacagc tgagttcaga tatatccagt gatggagaaa gagaggcgaa catgcctggc    300

ctcaacatcc gcaacaaaga attcaactat cttcataatc gaaatggttc tgaacttgac    360

cttttgggga tgtgagatct acttgaaaac cttggatact cagtggttat aaaagagaat    420

ctcacagctc aggaaatgga aacagcacta aggcagtttg ctgctcaccc agagcaccag    480

tcctcagaca gcacattcct ggtgtttatg tcacatagca tcctgaatgg aatctgtggg    540

accaagcact gggatcaaga gccagatgtt cttcacgatg acaccatctt tgaaatttttc    600

aacaaccgta actgccagag tctgaaagac aaacccaagg tcatcatcat gcaagcctgc    660

cgaggcaatg gtgctgggat tgtttggttc accactgaca gtggaaaagc cagtgcagat    720

actcatggtc ggctcttgca aggtaacatc tgtaatgatg ctgttacaaa ggctcatgtg    780
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gaaaaggact tcattgcttt caaatcttcc acaccacgtt caacattcat ttgagacccc 840

aaatatactg acccagctgc ccaccattga aagactatcc atgacacgat atttctatct 900

ctttcctggg aattaaaaat cgaattcccg cggccgccat ggcggccggg agcatgcgac 960

gtcgggccca attcgcccta tagtgagtcg tattacaatt c 1001

<210> 53
<211> 303
<212> PRT
<213> Homo sapiens

<400> 53

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Met Ala Asp Glu Lys Pro Ser Asn Gly Val Leu Val His Met Val Lys
1               5                  10                  15

Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
            20                  25                  30

Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
        35                  40                  45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
    50                  55                  60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65                  70                  75                  80

Lys Lys Gln Leu Ser Ser Ile Tyr Pro Val Met Glu Lys Glu Arg Arg
                85                  90                  95

Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
            100                 105                 110

Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Asp Leu Leu Glu
        115                 120                 125

Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln Glu
    130                 135                 140

Met Glu Thr Ala Leu Arg Gln Phe Ala Ala His Pro Glu His Gln Ser
145                 150                 155                 160

Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Ser Ile Leu Asn Gly
                165                 170                 175

Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp Val Leu His Asp
            180                 185                 190

Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys Gln Ser Leu Lys
        195                 200                 205

Asp Lys Pro Lys Val Ile Ile Met Gln Ala Cys Arg Gly Asn Gly Ala
    210                 215                 220

Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp Thr
225                 230                 235                 240

His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr Lys
                245                 250                 255
```

```
Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro Val
            260                 265                 270

Gln His Ser Phe Glu Thr Pro Asn Ile Leu Thr Gln Leu Pro Thr Ile
        275                 280                 285

Glu Arg Leu Ser Met Thr Arg Tyr Phe Tyr Leu Phe Pro Gly Asn
    290                 295                 300
```

<210> 54
<211> 874
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222>
<223> n = a or t or g or c

<400> 54
atggctgatg agaaaccatc cnacggtgtt ctggtccaca tggtgaagtt gctgatcaag 60

acctttctag atggcatttt tgatgatttg atggaaaata atgtgttaaa tacagatgag 120

atacacctta taggaaaatg tctaaagttt gtggtgagca atgctgaaaa cctggttgat 180

gatatcactg agacagctca aattgcaggc aaaatattta gggaacacct gtggaattcc 240

aaaaaacagc tgagttcaga tatatccagt gatggagaaa gagaggcgaa catgcctggc 300

ctcaacatcc gcaacaaaga attcaactat cttcataatc gaaatggttc tgaacttgac 360

cttttgggga tgtgagatct acttgaaaac cttggatact cagtggttat aaaagagaat 420

ctcacagctc agatggtgct gggattgttt ggttcaccac tgacagtgga aaagccagtg 480

cagatactca tggtcggctc ttgcaaggta acatctgtaa tgatgctgtt acaaaggctc 540

atgtggaaaa ggacttcatt gctttcaaat cttccacacc acataatgtt tcttggagac 600

atgaaacaaa tggctctgtc ttcatttccc aaattatcta ctacttcaga gagtattctt 660

ggagtcatca tctagaggaa atttttcaaa aggttcaaca ttcatttgag accccaaata 720

tactgaccca gctgcccacc attgaaagac tatccatgac acgatatttc tatctctttc 780

ctgggaatta aaaatcgaat tcccgcggcc gccatggcgg ccgggagcat gcgacgtcgg 840

gcccaattcg ccctatagtg agtcgtatta caat 874

<210> 55
<211> 261
<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<222> 8
<223> Xaa = any amino acid or no amino acid

<400> 55
Met Ala Asp Glu Lys Pro Ser Xaa Gly Val Leu Val His Met Val Lys

```
1               5                   10                  15

Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
            20                  25                  30

Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
        35                  40                  45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
    50                  55                  60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65                  70                  75                  80

Lys Lys Gln Leu Ser Ser Ile Tyr Pro Val Met Glu Lys Glu Arg Arg
                85                  90                  95

Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
            100                 105                 110

Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Asp Leu Leu Glu
        115                 120                 125

Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln Gly
    130                 135                 140

Ala Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp
145                 150                 155                 160

Thr His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr
                165                 170                 175

Lys Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro
            180                 185                 190

His Asn Val Ser Trp Arg His Glu Thr Asn Gly Ser Val Phe Ile Ser
        195                 200                 205

Gln Ile Ile Tyr Tyr Phe Arg Glu Tyr Ser Trp Ser His His Leu Glu
    210                 215                 220

Glu Ile Phe Gln Lys Val Gln His Ser Phe Glu Thr Pro Asn Ile Leu
225                 230                 235                 240

Thr Gln Leu Pro Thr Ile Glu Arg Leu Ser Met Thr Arg Tyr Phe Tyr
                245                 250                 255

Leu Phe Pro Gly Asn
            260
```

<210> 10
<211> 765
<212> DNA
<213> Homo sapiens

<400> 56
atggctgatg agaaaccatc caacggtgtt ctggtccaca tggtgaagtt gctgatcaag 60

acctttctag atggcatttt tgatgatttg atggaaaata atgtgttaaa tacagatgag 120

atacacctta taggaaaatg tctaaagttt gtggtgagca atgctgaaaa cctggttgat 180

gatatcactg agacagctca aattgcaggc aaaatattta gggaacacct gtggaattcc 240

aaaaaacagc tgagttcaga tatatccagt gatggagaaa gagaggcgaa catgcctggc 300

ctcaacatcc gcaacaaaga attcaactat cttcataatc gaaatggttc tgaacttgac 360

cttttgggga tgtgagatct acttgaaaac cttggatact cagtggttat aaaagagaat 420

ctcacagctc agatggtgct gggattgttt ggttccaccac tgacagtgga aaagccagtg 480

cagatactca tggtcggctc ttgcaaggta acatctgtaa tgatgctgtt acaaaggctc 540

atgtggaaaa ggacttcatt gctttcaaat cttccacacc acgttcaaca ttcatttgag 600

accccaaata tactgaccca gctgcccact attgaaagac tatccatgac acgatatttc 660

tatctctttc ctgggaatta aaaatcgaat tcccgcggcc gccatggcgg ccgggagcat 720

gcgacgtcgg gcccaattcg ccctatagtg agtcgtatta caatt 765

<210> 57
<211> 224
<212> PRT
<213> Homo sapien

<400> 57

Met Ala Asp Glu Lys Pro Ser Asn Gly Val Leu Val His Met Val Lys
1 5 10 15

Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
20 25 30

Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
35 40 45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
50 55 60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65 70 75 80

Lys Lys Gln Leu Ser Ser Ile Tyr Pro Val Met Glu Lys Glu Arg Arg
85 90 95

Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
100 105 110

Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Asp Leu Leu Glu
115 120 125

Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln Gly
130 135 140

Ala Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp
145 150 155 160

Thr His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr
165 170 175

Lys Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro

```
            180                 185                 190

Val Gln His Ser Phe Glu Thr Pro Asn Ile Leu Thr Gln Leu Pro Thr
        195                 200                 205

Ile Glu Arg Leu Ser Met Thr Arg Tyr Phe Tyr Leu Phe Pro Gly Asn
    210                 215                 220
```

<210> 58
<211> 439
<212> DNA
<213> Homo sapiens

<400> 58

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cccagtggca agttaaagct ttgtcctcat gctcacttcc atgaactaaa gacaaaaagg     60

gcagatgaga tatatccagt gatggagaaa gagaggcgaa catgcctggc ctcaacatcc    120

gcaacaaaga attcaactat cttcataatc gaaatggttc tgaacttgac cttttgggga    180

tgcgagatct acttgaaaac cttggatact cagtggttat aaaagagaat ctcacagcta    240

gcatcctgaa tggaatctgt gggaccaagc actgggatca agagccagat gttcttcacg    300

atgacaccat ctttgaaatt ttcaacaacc gtaactgcca gagtctgaaa gacaaaccca    360

aggtcatcat catgcaagcc tgccgaggcg gaatcactag tgaattcgcg gccgcctgca    420

ggtcgaccat atgggagag                                                 439
```

<210> 59
<211> 129
<212> PRT
<213> Homo sapien

<400> 59

```
Pro Ser Gly Lys Leu Lys Leu Cys Pro His Ala His Phe His Glu Leu
1               5                   10                  15

Lys Thr Lys Arg Ala Asp Glu Ile Tyr Pro Val Met Glu Lys Glu Arg
            20                  25                  30

Arg Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu
        35                  40                  45

His Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Asp Leu Leu
    50                  55                  60

Glu Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Ser
65                  70                  75                  80

Ile Leu Asn Gly Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp
                85                  90                  95

Val Leu His Asp Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys
            100                 105                 110

Gln Ser Leu Lys Asp Lys Pro Lys Val Ile Ile Met Gln Ala Cys Arg
        115                 120                 125

Gly
```

<210> 60
<211> 477
<212> DNA
<213> Homo sapiens

<400> 60
gcccaaccca gtggcaagtt aaagctttgt cctcatgctc acttccatga actaaagaca 60

aaaagggcag atgagatata tccagtgatg gagaaagaga ggcgaacatg cctggcctca 120

acatccgcaa caaagaattc aactatcttc ataatcgaaa tggttctgaa cttgacctttt 180

tggggatgtg agatctactt gaaaaccttg gatactcagt ggttataaaa gagagtctca 240

cagctcagga aatggaaaca gcactaaggc agtttgctgc tcacccagag caccagtcct 300

cagacagcac attcctggtg tttatgtcac atagcatcct gaatggaatc tgtgggacca 360

agcactggga tcaagagcca gatgttcttc acgatgacac catctttgaa attttcaaca 420

accgtaactg ccagagtctg aaagacaaac ccaaggtcat catcatgcaa gcctgcc 477

<210> 61
<211> 158
<212> PRT
<213> Homo sapiens

<400> 61
Ala Gln Pro Ser Gly Lys Leu Lys Leu Cys Pro His Ala His Phe His
1 5 10 15

Glu Leu Lys Thr Lys Arg Ala Asp Glu Ile Tyr Pro Val Met Glu Lys
20 25 30

Glu Arg Arg Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn
35 40 45

Tyr Leu His Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Asp
50 55 60

Leu Leu Glu Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Ser Leu Thr
65 70 75 80

Ala Gln Glu Met Glu Thr Ala Leu Arg Gln Phe Ala Ala His Pro Glu
85 90 95

His Gln Ser Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Ser Ile
100 105 110

Leu Asn Gly Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp Val
115 120 125

Leu His Asp Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys Gln
130 135 140

Ser Leu Lys Asp Lys Pro Lys Val Ile Ile Met Gln Ala Cys
145 150 155

<210> 62
<211> 497
<212> DNA

<213> Homo sapiens

<400> 62
gcccaaccca gtggcaagtt aaagctttgt cctcatgctc acttccatga actcaagaca 60

aaaagggcag atgagatata tccagtgatg gagaaagaga ggcgaacatg cctggcctca 120

acatccgcaa caaagaattc aactatcttc ataatcgaaa tggttctgaa cttgaccttt 180

tggggatgtg agatctactt gaaaaccttg gatactcagt ggttataaaa gagaatctca 240

cagctcagat ggtgctggga ttgtttggtt caccactgac agtggaaaag ccagtgcaga 300

tactcatggt cggctcttgc aaggtaacat ctgtaatgat gctgttacaa aggctcatgt 360

ggaaaaggac ttcattgctt tcaaatcttc cacaccacgt tcaacattca tttgagaccc 420

caaatatact gacccagctg cccaccattg aaagactatc catgacacga tatttctatc 480

tctttcctgg gaattaa 497

<210> 63
<211> 163
<212> PRT
<213> Homo sapien

<400> 63

Ala Gln Pro Ser Gly Lys Leu Lys Leu Cys Pro His Ala His Phe His
1 5 10 15

Glu Leu Lys Thr Lys Arg Ala Asp Glu Ile Tyr Pro Val Met Glu Lys
20 25 30

Glu Arg Arg Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn
35 40 45

Tyr Leu His Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Asp
50 55 60

Leu Leu Glu Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr
65 70 75 80

Ala Gln Gly Ala Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala
85 90 95

Ser Ala Asp Thr His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp
100 105 110

Ala Val Thr Lys Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser
115 120 125

Ser Thr Pro Val Gln His Ser Phe Glu Thr Pro Asn Ile Leu Thr Gln
130 135 140

Leu Pro Thr Ile Glu Arg Leu Ser Met Thr Arg Tyr Phe Tyr Leu Phe
145 150 155 160

Pro Gly Asn

<210> 64
<211> 661
<212> DNA
<213> Homo sapiens

<400> 64
gcccaaccca gtggcaagtt aaagctttgt cctcatgctc acttccatga actaaagaca 60

aaaagggcag atgagatata tccagtgatg gagaaagaga ggcgaacatg cctggcctca 120

acatccgcaa caaagaattc aactatcttc ataatcgaaa tggttctgaa cttgacctttt 180

aggggatgtg agatctactt gaaaaccttg gatactcagt ggttataaaa gagaatctca 240

cagctcagat ggtgctggga ttgtttggtt caccactgac agtggaaaag ccagtgcaga 300

tactcatggt cggctcttgc aaggtaacat ctgtaatgat gctgttacaa aggctcatgt 360

ggaaaaggac ttcattgctt tcaaatcttc cacaccacat aatgtttctt ggagacatga 420

aacaaatggc tctgtcttca tttcccaaat tatctactac ttcagagagt attcttggag 480

tcatcatcta gaggaaatct ttcaaaaggt tcaacattca tttgagaccc caaatatact 540

gacccagctg cccaccattg aaagactatc catgacacga tatttctatc tctttcctgg 600

gaattaaaaa tcgaattccc gcggccgcca tggcggccgg gagcatgcga cgtcgggccc 660

a 661

<210> 65
<211> 200
<212> PRT
<213> Homo sapiens

<400> 65
Ala Gln Pro Ser Gly Lys Leu Lys Leu Cys Pro His Ala His Phe His
1 5 10 15

Glu Leu Lys Thr Lys Arg Ala Asp Glu Ile Tyr Pro Val Met Glu Lys
20 25 30

Glu Arg Arg Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn
35 40 45

Tyr Leu His Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Asp
50 55 60

Leu Leu Glu Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr
65 70 75 80

Ala Gln Gly Ala Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala
85 90 95

Ser Ala Asp Thr His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp
100 105 110

Ala Val Thr Lys Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser
115 120 125

```
Ser Thr Pro His Asn Val Ser Trp Arg His Glu Thr Asn Gly Ser Val
    130                 135                 140

Phe Ile Ser Gln Ile Ile Tyr Tyr Phe Arg Glu Tyr Ser Trp Ser His
145                 150                 155                 160

His Leu Glu Glu Ile Phe Gln Lys Val Gln His Ser Phe Glu Thr Pro
                165                 170                 175

Asn Ile Leu Thr Gln Leu Pro Thr Ile Glu Arg Leu Ser Met Thr Arg
            180                 185                 190

Tyr Phe Tyr Leu Phe Pro Gly Asn
        195                 200
```

<210> 66
<211> 758
<212> DNA
<213> Homo sapiens

<400> 66
gcccaaccca gtggcaagtt aaagctttgt cctcatgctc acttccatga actaaagaca 60

aaaagggcag atgagatata tccagtgatg gagaaagaga ggcgaacatg cctggcctca 120

acatccgcaa caaagaattc aactatcttc ataatcgaaa tggttctgaa cttgaccttt 180

tggggatgtg agatctactt gaaaaccttg gatactcagt ggttataaaa gagaatctca 240

cagctcagga aatggaaaca gcactaaggc agtttgctgc tcacccagag caccagtcct 300

cagacagcac attcctggcg tttatgtcac atagcatcct gaatagaatc tgtgggacca 360

agcactggga tcaagagcca gatgttcttc acgatgacac catctttgaa attttcaaca 420

accgtaactg ccagagtctg aaagacaaac ccaagatggt gctgggattg tttggttcac 480

cactgacagt ggaaaaagcc agtgcagata ctcatggtcg gctcttgcaa ggtaacatct 540

gtaatgatgc tgttacaaag gttcatgtgg aaaaggactt cattgctttc aaatcttcca 600

caccacgttc aacattcatt tgagacccca aatatactga cccagctgcc caccattgaa 660

agactatcca tgacacgata tttctatctc tttcctggga attaaaaatc gaattcccgc 720

ggccgccagg cggccgggag catgcgacgt cgggccca 758

<210> 67
<211> 232
<212> PRT
<213> Homo sapien

<400> 67
```
Ala Gln Pro Ser Gly Lys Leu Lys Leu Cys Pro His Ala His Phe His
1               5                   10                  15

Glu Leu Lys Thr Lys Arg Ala Asp Glu Ile Tyr Pro Val Met Glu Lys
            20                  25                  30

Glu Arg Arg Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn
        35                  40                  45
```

```
Tyr Leu His Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Asp
    50                  55                  60

Leu Leu Glu Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr
65                  70                  75                  80

Ala Gln Glu Met Glu Thr Ala Leu Arg Gln Phe Ala Ala His Pro Glu
                85                  90                  95

His Gln Ser Ser Asp Ser Thr Phe Leu Ala Phe Met Ser His Ser Ile
            100                 105                 110

Leu Asn Arg Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp Val
        115                 120                 125

Leu His Asp Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys Gln
    130                 135                 140

Ser Leu Lys Asp Lys Pro Lys Gly Ala Gly Ile Val Trp Phe Thr Thr
145                 150                 155                 160

Asp Val Glu Lys Ala Ser Ala Asp Thr His Gly Arg Leu Leu Gln Gly
                165                 170                 175

Asn Ile Cys Asn Asp Ala Val Thr Lys Val His Val Glu Lys Asp Phe
            180                 185                 190

Ile Ala Phe Lys Ser Ser Thr Pro Val Gln His Ser Phe Glu Thr Pro
        195                 200                 205

Asn Ile Leu Thr Gln Leu Pro Thr Ile Glu Arg Leu Ser Met Thr Arg
    210                 215                 220

Tyr Phe Tyr Leu Phe Pro Gly Asn
225                 230

<210>  68
<211>  503
<212>  DNA
<213>  Homo sapiens

<400>  68
atggctgatg agaaaccatc caacggtgtt ctggtccaca tggtgaagtt gctgatcaag     60

acctttctag atggcatttt tgatgatttg atggaaaata atgtgttaaa tacagatgag    120

atacacctta taggaaaatg tctaaagttt gtggtgagca atgctgaaaa cctggttgat    180

gatatcactg agacagctca gattgcaggc aaaatattta gggaacacct gtggaattcc    240

aaaaaacagc tgagttcaga tatatccagt gatggagaaa gagaggcgaa catgcctggc    300

ctcaacatcc gcaacaaaga attcaactat cttcataatc gaaatggttc tgaacttgac    360

cttttgggga tgtgagatct acttgaaaac cttggatact cagtggttat aaaagagaat    420

ctcacagctc aggaaatgga aacagcacat tcctggtgtt tatgtcacat agcatcctga    480

atggaatctg tgggaccaag cac                                            503
```

<210> 69
<211> 166
<212> PRT
<213> Homo sapien

<400> 69
Met Ala Asp Glu Lys Pro Ser Asn Gly Val Leu Val His Met Val Lys
1 5 10 15

Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
20 25 30

Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
35 40 45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
50 55 60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65 70 75 80

Lys Lys Gln Leu Ser Ser Ile Tyr Pro Val Met Glu Lys Glu Arg Arg
85 90 95

Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
100 105 110

Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Asp Leu Leu Glu
115 120 125

Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln Glu
130 135 140

Met Glu Ser Thr Phe Leu Val Phe Met Ser His Ser Ile Leu Asn Gly
145 150 155 160

Ile Cys Gly Thr Lys His
165

<210> 70
<211> 1129
<212> DNA
<213> Homo sapiens

<400> 70
tgattgccat ggctgatgag aaaccatcca acggtgttct ggtccacatg gtgaagttgc 60

tgatcaagac ctttctagat ggcatttttg atgatttgat ggaaaataat gtgttaaata 120

cagatgagat acaccttata ggaaaatgtc taaagtttgt ggtgagcaat gctgaaaacc 180

tggttgatga tatcactgag acagctcaaa ttgcaggcaa aatatttagg gaacacctgt 240

ggaattccaa aaaacagctg agttcagctc ttctggaaat ccagggtgcc caacccagtg 300

gcaagttaaa gctttgtcct catgctcact tccatgaact aaagacaaaa agggcagatg 360

agatatatcc agtgatggag aaagagaggc gaacatgcct ggcctcaaca tccgcaacaa 420

agaattcaac tatcttcata atcgaaatgg ttctgaactt gacctttttgg ggatgtgaga 480

tctacttgaa aaccttggat actcagtggt tataaaagag aatctcacag ctcaggaaat 540

ggaaacagca ctaaggcagt ttgctgctca cccagagcac cagtcctcag acagcacatt 600

cctggtgttt atgtcacata gcatcctgaa tggaatctgt gggaccaagc actgggatca 660

agagccagat gttcttcacg atgacaccat ctttgaaatt ttcaacaacc gtaactgcca 720

gagtctgaaa gacaaaccca aggtcatcat catgcaagcc tgccgaggca atggtgctgg 780

gattgtttgg ttcaccactg acagtggaaa agccagtgca gatactcatg gtcggctctt 840

gcaaggtaac atctgtaatg atgctgttac aaaggctcat gtggaaaagg acttcattgc 900

tttcaaatct tccacaccac ataatgtttc ttggagacat gaaacaaatg gctctgtctt 960

catttcccaa attatctact acttcagaga gtattcttgg agtcatcatc tagaggaaat 1020

ttttcaaaag gttcaacatt catttgagac cccaaatata ctgacccagc tgcccaccat 1080

tgaaagacta tccatgacac gatatttcta tctctttcct gggaattaa 1129

<210> 71
<211> 372
<212> PRT
<213> Homo sapiens

<400> 71

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Met Ala Asp Glu Lys Pro Ser Asn Gly Val Leu Val His Met Val Lys
1               5                  10                  15

Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
            20                  25                  30

Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
        35                  40                  45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
    50                  55                  60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65                  70                  75                  80

Lys Lys Gln Leu Ser Ser Ala Leu Leu Glu Ile Gln Gly Ala Gln Pro
                85                  90                  95

Ser Gly Lys Leu Lys Leu Cys Pro His Ala His Phe His Glu Leu Lys
            100                 105                 110

Thr Lys Arg Ala Asp Glu Ile Tyr Pro Val Met Glu Lys Glu Arg Arg
        115                 120                 125

Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
    130                 135                 140

Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Asp Leu Leu Glu
145                 150                 155                 160

Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln Glu
                165                 170                 175
```

```
Met Glu Thr Ala Leu Arg Gln Phe Ala Ala His Pro Glu His Gln Ser
            180                 185                 190

Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Ser Ile Leu Asn Gly
        195                 200                 205

Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp Val Leu His Asp
    210                 215                 220

Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys Gln Ser Leu Lys
225                 230                 235                 240

Asp Lys Pro Lys Val Ile Ile Met Gln Ala Cys Arg Gly Asn Gly Ala
                245                 250                 255

Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp Thr
            260                 265                 270

His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr Lys
        275                 280                 285

Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro His
    290                 295                 300

Asn Val Ser Trp Arg His Glu Thr Asn Gly Ser Val Phe Ile Ser Gln
305                 310                 315                 320

Ile Ile Tyr Tyr Phe Arg Glu Tyr Ser Trp Ser His His Leu Glu Glu
                325                 330                 335

Ile Phe Gln Lys Val Gln His Ser Phe Glu Thr Pro Asn Ile Leu Thr
            340                 345                 350

Gln Leu Pro Thr Ile Glu Arg Leu Ser Met Thr Arg Tyr Phe Tyr Leu
        355                 360                 365

Phe Pro Gly Asn
    370
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<210> 72
<211> 1130
<212> DNA
<213> Homo sapiens

<400> 72
tgattgccat ggctgatgag aaaccatcca acggtgttct ggtccacatg gtgaagttgc 60

tgatcaagac ctttctagat ggcatttttg atgatttgat ggaaaataat gtgttaaata 120

cagatgagat acaccttata ggaaaatgtc taaagtttgt ggtgagcaat gctgaaaacc 180

tggttgatga tatcactgag acagctcaaa ttgcaggcaa aatatttagg gaacacctgt 240

ggaattccaa aaaacagctg agttcagctc ttctggaaat ccagggtgcc caacccagtg 300

gcaagttaaa gctttgtcct catgctcact tccatgaact aaagacaaaa agggcagatg 360

agatatatcc agtgatggag aaagagaggc gaacatgcct ggccctcaac atccgcaaca 420

aagaattcaa ctatcttcat aatcgaaatg gttctgaact tgacctttg gggatgcgag 480

atctacttga aaaccttgga tactcagtgg ttataaaaga gaatctcaca gctcaggaaa 540

tggaaacagc actaaggcag tttgctgctc acccagagca ccagtcctca gacagcacat 600

tcctggtgtt tatgtcacat agcatcctga atggaatctg tgggaccaag cactgggatc 660

aagagccaga tgttcttcac gatgacacca tctttgaaat tttcaacaac cgtaactgcc 720

agagtctgaa agacaaaccc aaggtcatca tcatgcaagc ctgccgaggc aatggtgctg 780

ggattgtttg gttcaccact gacagtggaa aagccagtgc agatactcat ggtcggctct 840

tgcaaggtaa catctgtaat gatgctgtta caaaggctca tgtggaaaag gacttcattg 900

ctttcaaatc ttccacacca cataatgttt cttggagaca tgaaacaaat ggctctgtct 960

tcatttccca aattatctac tacttcagag agtattcttg gagtcatcat ctagaggaaa 1020

tttttcaaaa ggttcaacat tcatttgaga ccccaaatat actgacccag ctgcccacca 1080

ttgaaagact atccatgaca cgatatttct atctctttcc tgggaattaa 1130

<210> 73
<211> 373
<212> PRT
<213> Homo sapiens

<400> 73

Met Ala Asp Glu Lys Pro Ser Asn Gly Val Leu Val His Met Val Lys
1 5 10 15

Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
20 25 30

Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
35 40 45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
50 55 60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65 70 75 80

Lys Lys Gln Leu Ser Ser Ala Leu Leu Glu Ile Gln Gly Ala Gln Pro
85 90 95

Ser Gly Lys Leu Lys Leu Cys Pro His Ala His Phe His Glu Leu Lys
100 105 110

Thr Lys Arg Ala Asp Glu Ile Tyr Pro Val Met Glu Lys Glu Arg Arg
115 120 125

Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
130 135 140

Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Arg Asp Leu Leu
145 150 155 160

Glu Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln
165 170 175

Glu Met Glu Thr Ala Leu Arg Gln Phe Ala Ala His Pro Glu His Gln

```
            180                 185                 190

Ser Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Ser Ile Leu Asn
        195                 200                 205

Gly Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp Val Leu His
    210                 215                 220

Asp Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys Gln Ser Leu
225                 230                 235                 240

Lys Asp Lys Pro Lys Val Ile Ile Met Gln Ala Cys Arg Gly Asn Gly
                245                 250                 255

Ala Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp
            260                 265                 270

Thr His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr
        275                 280                 285

Lys Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro
    290                 295                 300

His Asn Val Ser Trp Arg His Glu Thr Asn Gly Ser Val Phe Ile Ser
305                 310                 315                 320

Gln Ile Ile Tyr Tyr Phe Arg Glu Tyr Ser Trp Ser His His Leu Glu
                325                 330                 335

Glu Ile Phe Gln Lys Val Gln His Ser Phe Glu Thr Pro Asn Ile Leu
            340                 345                 350

Thr Gln Leu Pro Thr Ile Glu Arg Leu Ser Met Thr Arg Tyr Phe Tyr
        355                 360                 365

Leu Phe Pro Gly Asn
    370
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<210> 74
<211> 867
<212> DNA
<213> Homo sapiens

<400> 74
tcagctcttc tggaaatcca gggtgcccaa cccagtggca agttaaagct ttgtcctcat 60

gctcacttcc atgaactaaa gacaaaaagg gcagatgaga tatatccagt gatggagaaa 120

gagaggcgaa catgcctggc cctcaacatc cgcaacaaag aattcaacta tcttcataat 180

cgaaatggtt ctgaacttga ccttttgggg atgcgagatc tacttgaaaa ccttggatac 240

tcagtggtta taaaagagaa tctcacagct caggaaatgg aaacagcact aaggcagttt 300

gctgctcacc cagagcacca gtcctcagac agcacattcc tggtgtttat gtcacatagc 360

atcctgaatg gaatctgtgg gaccaagcac tgggatcaag agccagatgt tcttcacgat 420

gacaccatct ttgaaatttt caacaaccgt aactgccaga gtctgaaaga caaacccaag 480

gtcatcatca tgcaagcctg ccgaggcaat ggtgctggga ttgtttggtt caccactgac 540

agtggaaaag ccagtgcaga tactcatggt cggctcttgc aaggtaacat ctgtaatgat 600

gctgttacaa aggctcatgt ggaaaaggac ttcattgctt tcaaatcttc cacaccacat 660

aatgtttctt ggagacatga aacaaatggc tctgtcttca tttcccaaat tatctactac 720

ttcagagagt attcttggag tcatcatcta gaggaaattt ttcaaaaggt tcaacattca 780

tttgagaccc caaatatact gacccagctg cccaccattg aaagactatc catgacacga 840

tatttctatc tctttcctgg gaattaa 867

<210> 75
<211> 288
<212> PRT
<213> Homo sapiens

<400> 75
Ser Ala Leu Leu Glu Ile Gln Gly Ala Gln Pro Ser Gly Lys Leu Lys
1 5 10 15

Leu Cys Pro His Ala His Phe His Glu Leu Lys Thr Lys Arg Ala Asp
20 25 30

Glu Ile Tyr Pro Val Met Glu Lys Glu Arg Arg Thr Cys Leu Ala Leu
35 40 45

Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His Asn Arg Asn Gly Ser
50 55 60

Glu Leu Asp Leu Leu Gly Met Arg Asp Leu Leu Glu Asn Leu Gly Tyr
65 70 75 80

Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln Glu Met Glu Thr Ala
85 90 95

Leu Arg Gln Phe Ala Ala His Pro Glu His Gln Ser Ser Asp Ser Thr
100 105 110

Phe Leu Val Phe Met Ser His Ser Ile Leu Asn Gly Ile Cys Gly Thr
115 120 125

Lys His Trp Asp Gln Glu Pro Asp Val Leu His Asp Asp Thr Ile Phe
130 135 140

Glu Ile Phe Asn Asn Arg Asn Cys Gln Ser Leu Lys Asp Lys Pro Lys
145 150 155 160

Val Ile Ile Met Gln Ala Cys Arg Gly Asn Gly Ala Gly Ile Val Trp
165 170 175

Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp Thr His Gly Arg Leu
180 185 190

Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr Lys Ala His Val Glu
195 200 205

Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro His Asn Val Ser Trp
210 215 220

Arg His Glu Thr Asn Gly Ser Val Phe Ile Ser Gln Ile Ile Tyr Tyr

225 230 235 240

Phe Arg Glu Tyr Ser Trp Ser His His Leu Glu Glu Ile Phe Gln Lys
245 250 255

Val Gln His Ser Phe Glu Thr Pro Asn Ile Leu Thr Gln Leu Pro Thr
260 265 270

Ile Glu Arg Leu Ser Met Thr Arg Tyr Phe Tyr Leu Phe Pro Gly Asn
275 280 285

<210> 76
<211> 1130
<212> DNA
<213> Homo sapiens

<400> 76
tgattgccat ggctgatgag aaaccatcca acggtgttct ggtccacatg gtgaagttgc 60

tgatcaagac ctttctagat ggcatttttg atgatttgat ggaaaataat gtgttaaata 120

cagatgagat acaccttata ggaaaatgtc taaagtttgt ggtgagcaat gctgaaaacc 180

tggttgatga tatcactgag acagctcaaa ttgcaggcaa aatatttagg gaacacctgt 240

ggaattccaa aaaacagctg agttcagctc ttctggaaat ccagggtgcc caacccagtg 300

gcaagttaaa gctttgtcct catgctcact tccatgaact aaagacaaaa agggcagatg 360

agatatatcc agtgatggag aaagagaggc gaacatgcct ggccctcaac atccgcaaca 420

aagaattcaa ctatcttcat aatcgaaatg gttctgaact tgacctttg gggatgcgag 480

atctacttga aaaccttgga tactcagtgg ttataaaaga gaatctcaca gctcaggaaa 540

tggaaacagc actaaggcag tttgctgctc acccagagca ccagtcctca gacagcacat 600

tcctggtgtt tatgtcacat ggcatcctga atggaatctg tgggaccaag cactgggatc 660

aagagccaga tgttcttcac gatgacacca tctttgaaat tttcaacaac cgtaactgcc 720

agagtctgaa agacaaaccc aaggtcatca tcatgcaagc ctgccgaggc aatggtgctg 780

ggattgtttg gttcaccact gacagtggaa aagccagtgc agatactcat ggtcggctct 840

tgcaaggtaa catctgtaat gatgctgtta caaaggctca tgtggaaaag gacttcattg 900

ctttcaaatc ttccacacca cataatgttt cttggagaca tgaaacaaat ggctctgtct 960

tcatttccca aattatctac tacttcagag agtattcttg gagtcatcat ctagaggaaa 1020

tttttcaaaa ggttcaacat tcatttgaga ccccaaatat actgacccag ctgcccacca 1080

ttgaaagact atccatgaca cgatatttct atctctttcc tgggaattaa 1130

<210> 77
<211> 373
<212> PRT
<213> Homo sapiens

<400> 77
Met Ala Asp Glu Lys Pro Ser Asn Gly Val Leu Val His Met Val Lys

```
1               5                  10                  15

Leu Leu Ile Lys Thr Phe Leu Asp Gly Ile Phe Asp Asp Leu Met Glu
            20                  25                  30

Asn Asn Val Leu Asn Thr Asp Glu Ile His Leu Ile Gly Lys Cys Leu
        35                  40                  45

Lys Phe Val Val Ser Asn Ala Glu Asn Leu Val Asp Asp Ile Thr Glu
    50                  55                  60

Thr Ala Gln Ile Ala Gly Lys Ile Phe Arg Glu His Leu Trp Asn Ser
65                  70                  75                  80

Lys Lys Gln Leu Ser Ser Ala Leu Leu Glu Ile Gln Gly Ala Gln Pro
                85                  90                  95

Ser Gly Lys Leu Lys Leu Cys Pro His Ala His Phe His Glu Leu Lys
            100                 105                 110

Thr Lys Arg Ala Asp Glu Ile Tyr Pro Val Met Glu Lys Glu Arg Arg
        115                 120                 125

Thr Cys Leu Ala Leu Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His
    130                 135                 140

Asn Arg Asn Gly Ser Glu Leu Asp Leu Leu Gly Met Arg Asp Leu Leu
145                 150                 155                 160

Glu Asn Leu Gly Tyr Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln
                165                 170                 175

Glu Met Glu Thr Ala Leu Arg Gln Phe Ala Ala His Pro Glu His Gln
            180                 185                 190

Ser Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Gly Ile Leu Asn
        195                 200                 205

Gly Ile Cys Gly Thr Lys His Trp Asp Gln Glu Pro Asp Val Leu His
    210                 215                 220

Asp Asp Thr Ile Phe Glu Ile Phe Asn Asn Arg Asn Cys Gln Ser Leu
225                 230                 235                 240

Lys Asp Lys Pro Lys Val Ile Ile Met Gln Ala Cys Arg Gly Asn Gly
                245                 250                 255

Ala Gly Ile Val Trp Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp
            260                 265                 270

Thr His Gly Arg Leu Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr
        275                 280                 285

Lys Ala His Val Glu Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro
    290                 295                 300

His Asn Val Ser Trp Arg His Glu Thr Asn Gly Ser Val Phe Ile Ser
305                 310                 315                 320

Gln Ile Ile Tyr Tyr Phe Arg Glu Tyr Ser Trp Ser His His Leu Glu
```

325 330 335

Glu Ile Phe Gln Lys Val Gln His Ser Phe Glu Thr Pro Asn Ile Leu
340 345 350

Thr Gln Leu Pro Thr Ile Glu Arg Leu Ser Met Thr Arg Tyr Phe Tyr
355 360 365

Leu Phe Pro Gly Asn
370

<210> 78
<211> 867
<212> DNA
<213> Homo sapiens

<400> 78
tcagctcttc tggaaatcca gggtgcccaa cccagtggca agttaaagct ttgtcctcat 60

gctcacttcc atgaactaaa gacaaaaagg gcagatgaga tatatccagt gatggagaaa 120

gagaggcgaa catgcctggc cctcaacatc cgcaacaaag aattcaacta tcttcataat 180

cgaaatggtt ctgaacttga ccttttgggg atgcgagatc tacttgaaaa ccttggatac 240

tcagtggtta taaaagagaa tctcacagct caggaaatgg aaacagcact aaggcagttt 300

gctgctcacc cagagcacca gtcctcagac agcacattcc tggtgtttat gtcacatggc 360

atcctgaatg gaatctgtgg gaccaagcac tgggatcaag agccagatgt tcttcacgat 420

gacaccatct ttgaaatttt caacaaccgt aactgccaga gtctgaaaga caaacccaag 480

gtcatcatca tgcaagcctg ccgaggcaat ggtgctggga ttgtttggtt caccactgac 540

agtggaaaag ccagtgcaga tactcatggt cggctcttgc aaggtaacat ctgtaatgat 600

gctgttacaa aggctcatgt ggaaaaggac ttcattgctt tcaaatcttc cacaccacat 660

aatgtttctt ggagacatga aacaaatggc tctgtcttca tttcccaaat tatctactac 720

ttcagagagt attcttggag tcatcatcta gaggaaattt ttcaaaaggt tcaacattca 780

tttgagaccc caaatatact gacccagctg cccaccattg aaagactatc catgacacga 840

tatttctatc tctttcctgg gaattaa 867

<210> 79
<211> 288
<212> PRT
<213> Homo sapiens

<400> 79
Ser Ala Leu Leu Glu Ile Gln Gly Ala Gln Pro Ser Gly Lys Leu Lys
1 5 10 15

Leu Cys Pro His Ala His Phe His Glu Leu Lys Thr Lys Arg Ala Asp
20 25 30

Glu Ile Tyr Pro Val Met Glu Lys Glu Arg Arg Thr Cys Leu Ala Leu
35 40 45

```
Asn Ile Arg Asn Lys Glu Phe Asn Tyr Leu His Asn Arg Asn Gly Ser
    50                  55                  60

Glu Leu Asp Leu Leu Gly Met Arg Asp Leu Leu Glu Asn Leu Gly Tyr
65                  70                  75                  80

Ser Val Val Ile Lys Glu Asn Leu Thr Ala Gln Glu Met Glu Thr Ala
                85                  90                  95

Leu Arg Gln Phe Ala Ala His Pro Glu His Gln Ser Ser Asp Ser Thr
            100                 105                 110

Phe Leu Val Phe Met Ser His Gly Ile Leu Asn Gly Ile Cys Gly Thr
        115                 120                 125

Lys His Trp Asp Gln Glu Pro Asp Val Leu His Asp Asp Thr Ile Phe
    130                 135                 140

Glu Ile Phe Asn Asn Arg Asn Cys Gln Ser Leu Lys Asp Lys Pro Lys
145                 150                 155                 160

Val Ile Ile Met Gln Ala Cys Arg Gly Asn Gly Ala Gly Ile Val Trp
                165                 170                 175

Phe Thr Thr Asp Ser Gly Lys Ala Ser Ala Asp Thr His Gly Arg Leu
            180                 185                 190

Leu Gln Gly Asn Ile Cys Asn Asp Ala Val Thr Lys Ala His Val Glu
        195                 200                 205

Lys Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro His Asn Val Ser Trp
    210                 215                 220

Arg His Glu Thr Asn Gly Ser Val Phe Ile Ser Gln Ile Ile Tyr Tyr
225                 230                 235                 240

Phe Arg Glu Tyr Ser Trp Ser His His Leu Glu Glu Ile Phe Gln Lys
                245                 250                 255

Val Gln His Ser Phe Glu Thr Pro Asn Ile Leu Thr Gln Leu Pro Thr
            260                 265                 270

Ile Glu Arg Leu Ser Met Thr Arg Tyr Phe Tyr Leu Phe Pro Gly Asn
        275                 280                 285

<210>  80
<211>  404
<212>  PRT
<213>  Homo Sapien

<400>  80
Met Ala Asp Lys Val Leu Lys Glu Lys Arg Lys Leu Phe Ile Arg Ser
1               5                   10                  15

Met Gly Glu Gly Thr Ile Asn Gly Leu Leu Asp Glu Leu Leu Gln Thr
            20                  25                  30

Arg Val Leu Asn Lys Glu Glu Met Glu Lys Val Lys Arg Glu Asn Ala
        35                  40                  45

Thr Val Met Asp Lys Thr Arg Ala Leu Ile Asp Ser Val Ile Pro Lys
    50                  55                  60
```

```
Gly Ala Gln Ala Cys Gln Ile Cys Ile Thr Tyr Ile Cys Glu Glu Asp
65                  70                  75                  80

Ser Tyr Leu Ala Gly Thr Leu Gly Leu Ser Ala Asp Gln Thr Ser Gly
                85                  90                  95

Asn Tyr Leu Asn Met Gln Asp Ser Gln Gly Val Leu Ser Ser Phe Pro
            100                 105                 110

Ala Pro Gln Ala Val Gln Asp Asn Pro Ala Met Pro Thr Ser Ser Gly
        115                 120                 125

Ser Glu Gly Asn Val Lys Leu Cys Ser Leu Glu Glu Ala Gln Arg Ile
    130                 135                 140

Trp Lys Gln Lys Ser Ala Glu Ile Tyr Pro Ile Met Asp Lys Ser Ser
145                 150                 155                 160

Arg Thr Arg Leu Ala Leu Ile Ile Cys Asn Glu Glu Phe Asp Ser Ile
                165                 170                 175

Pro Arg Arg Thr Gly Ala Glu Val Asp Ile Thr Gly Met Thr Met Leu
            180                 185                 190

Leu Gln Asn Leu Gly Tyr Ser Val Asp Val Lys Lys Asn Leu Thr Ala
        195                 200                 205

Ser Asp Met Thr Thr Glu Leu Glu Ala Phe Ala His Arg Pro Glu His
    210                 215                 220

Lys Thr Ser Asp Ser Thr Phe Leu Val Phe Met Ser His Gly Ile Arg
225                 230                 235                 240

Glu Gly Ile Cys Gly Lys Lys His Ser Glu Gln Val Pro Asp Ile Leu
                245                 250                 255

Gln Leu Asn Ala Ile Phe Asn Met Leu Asn Thr Lys Asn Cys Pro Ser
            260                 265                 270

Leu Lys Asp Lys Pro Lys Val Ile Ile Ile Gln Ala Cys Arg Gly Asp
        275                 280                 285

Ser Pro Gly Val Val Trp Phe Lys Asp Ser Val Gly Val Ser Gly Asn
    290                 295                 300

Leu Ser Leu Pro Thr Thr Glu Glu Phe Glu Asp Asp Ala Ile Lys Lys
305                 310                 315                 320

Ala His Ile Glu Lys Asp Phe Ile Ala Phe Cys Ser Ser Thr Pro Asp
                325                 330                 335

Asn Val Ser Trp Arg His Pro Thr Met Gly Ser Val Phe Ile Gly Arg
            340                 345                 350

Leu Ile Glu His Met Gln Glu Tyr Ala Cys Ser Cys Asp Val Glu Glu
        355                 360                 365

Ile Phe Arg Lys Val Arg Phe Ser Phe Glu Gln Pro Asp Gly Arg Ala
    370                 375                 380

Gln Met Pro Thr Thr Glu Arg Val Thr Leu Thr Arg Cys Phe Tyr Leu
385                 390                 395                 400
```

Phe Pro Gly His

<210> 81
<211> 377
<212> PRT
<213> Homo sapiens

<400> 81

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Met Ala Glu Asp Lys His Asn Lys Asn Pro Leu Lys Met Leu Glu Ser
1               5                  10                  15

Leu Gly Lys Glu Leu Ile Ser Gly Leu Leu Asp Asp Phe Val Glu Lys
            20                  25                  30

Asn Val Leu Lys Leu Glu Glu Glu Glu Lys Lys Lys Ile Tyr Asp Ala
        35                  40                  45

Lys Leu Gln Asp Lys Ala Arg Val Leu Val Asp Ser Ile Arg Gln Lys
    50                  55                  60

Asn Gln Glu Ala Gly Gln Val Phe Val Gln Thr Phe Leu Asn Ile Asp
65                  70                  75                  80

Lys Asn Ser Thr Ser Ile Lys Ala Pro Glu Glu Thr Val Ala Gly Pro
                85                  90                  95

Asp Glu Ser Val Gly Ser Ala Ala Thr Leu Lys Leu Cys Pro His Glu
            100                 105                 110

Glu Phe Leu Lys Leu Cys Lys Glu Arg Ala Gly Glu Ile Tyr Pro Ile
        115                 120                 125

Lys Glu Arg Lys Asp Arg Thr Arg Leu Ala Leu Ile Ile Cys Asn Thr
    130                 135                 140

Glu Phe Asp His Met Pro Pro Arg Asn Gly Ala Ala Leu Asp Ile Leu
145                 150                 155                 160

Gly Met Lys Gln Leu Leu Glu Gly Leu Gly Tyr Thr Val Glu Val Glu
                165                 170                 175

Glu Lys Leu Thr Ala Arg Asp Met Glu Ser Val Leu Trp Lys Phe Ala
            180                 185                 190

Ala Arg Glu Glu His Lys Ser Ser Asp Ser Thr Phe Leu Val Phe Met
        195                 200                 205

Ser His Gly Ile Leu Asp Gly Ile Cys Gly Thr Met His Ser Glu Glu
    210                 215                 220

Glu Pro Asp Val Leu Pro Tyr Asp Thr Ile Phe Arg Thr Phe Asn Asn
225                 230                 235                 240

Arg Asn Cys Leu Ser Leu Lys Asp Lys Pro Lys Val Ile Ile Val Gln
                245                 250                 255

Ala Cys Arg Gly Ala Asn Arg Gly Glu Leu Trp Val Ser Asp Ser Pro
            260                 265                 270

Pro Ala Leu Ala Asp Ser Phe Ser Gln Ser Ser Glu Asn Leu Glu Glu
        275                 280                 285
```

```
Asp Ala Val Tyr Lys Thr His Val Glu Lys Asp Phe Ile Ala Phe Cys
    290                 295                 300

Ser Ser Thr Pro His Asn Val Ser Trp Arg Asp Ile Lys Lys Gly Ser
305                 310                 315                 320

Leu Phe Ile Thr Arg Leu Ile Thr Cys Phe Gln Lys Tyr Ala Trp Cys
                325                 330                 335

Cys His Leu Glu Glu Val Phe Arg Lys Val Gln Gln Ser Phe Glu Lys
            340                 345                 350

Pro Asn Val Lys Ala Gln Met Pro Thr Val Glu Arg Leu Ser Met Thr
        355                 360                 365

Arg Tyr Phe Tyr Leu Phe Pro Gly Asn
    370                 375

<210>  82
<211>  377
<212>  PRT
<213>  Homo sapiens

<400>  82
Met Ala Glu Gly Asn His Arg Lys Lys Pro Leu Lys Val Leu Glu Ser
1               5                   10                  15

Leu Gly Lys Asp Phe Leu Thr Gly Val Leu Asp Asn Leu Val Glu Gln
            20                  25                  30

Asn Val Leu Asn Trp Lys Glu Glu Glu Lys Lys Lys Tyr Tyr Asp Ala
        35                  40                  45

Lys Thr Glu Asp Lys Val Arg Val Met Ala Asp Ser Met Gln Glu Lys
    50                  55                  60

Gln Arg Met Ala Gly Gln Met Leu Leu Gln Thr Phe Phe Asn Ile Asp
65                  70                  75                  80

Gln Ile Ser Pro Asn Lys Lys Ala His Pro Asn Met Glu Ala Gly Pro
                85                  90                  95

Pro Glu Ser Gly Glu Ser Thr Asp Ala Leu Lys Leu Cys Pro His Glu
            100                 105                 110

Glu Phe Leu Arg Leu Cys Lys Glu Arg Ala Glu Glu Ile Tyr Pro Ile
        115                 120                 125

Lys Glu Arg Asn Asn Arg Thr Arg Leu Ala Leu Ile Ile Cys Asn Thr
    130                 135                 140

Glu Phe Asp His Leu Pro Pro Arg Asn Gly Ala Asp Phe Asp Ile Thr
145                 150                 155                 160

Gly Met Lys Glu Leu Leu Glu Gly Leu Asp Tyr Ser Val Asp Val Glu
                165                 170                 175

Glu Asn Leu Thr Ala Arg Asp Met Glu Ser Ala Leu Arg Ala Phe Ala
            180                 185                 190

Thr Arg Pro Glu His Lys Ser Ser Asp Ser Thr Phe Leu Val Leu Met
        195                 200                 205
```

```
Ser His Gly Ile Leu Glu Gly Ile Cys Gly Thr Val His Asp Glu Lys
    210                 215                 220

Lys Pro Asp Val Leu Leu Tyr Asp Thr Ile Phe Gln Ile Phe Asn Asn
225                 230                 235                 240

Arg Asn Cys Leu Ser Leu Lys Asp Lys Pro Lys Val Ile Ile Val Gln
                245                 250                 255

Ala Cys Arg Gly Ala Asn Arg Gly Glu Leu Trp Val Arg Asp Ser Pro
            260                 265                 270

Ala Ser Leu Glu Val Ala Ser Ser Gln Ser Ser Glu Asn Leu Glu Glu
        275                 280                 285

Asp Ala Val Tyr Lys Thr His Val Glu Lys Asp Phe Ile Ala Phe Cys
    290                 295                 300

Ser Ser Thr Pro His Asn Val Ser Trp Arg Asp Ser Thr Met Gly Ser
305                 310                 315                 320

Ile Phe Ile Thr Gln Leu Ile Thr Cys Phe Gln Lys Tyr Ser Trp Cys
                325                 330                 335

Cys His Leu Glu Glu Val Phe Arg Lys Val Gln Gln Ser Phe Glu Thr
            340                 345                 350

Pro Arg Ala Lys Ala Gln Met Pro Thr Ile Glu Arg Leu Ser Met Thr
        355                 360                 365

Arg Tyr Phe Tyr Leu Phe Pro Gly Asn
    370                 375
```

<210> 83
<211> 418
<212> PRT
<213> Homo sapiens

```
<400> 83
Met Phe Lys Gly Ile Leu Gln Ser Gly Leu Asp Asn Phe Val Ile Asn
1               5                   10                  15

His Met Leu Lys Asn Asn Val Ala Gly Gln Thr Ser Ile Gln Thr Leu
            20                  25                  30

Val Pro Asn Thr Asp Gln Lys Ser Thr Ser Val Lys Lys Asp Asn His
        35                  40                  45

Lys Lys Lys Thr Val Lys Met Leu Glu Tyr Leu Gly Lys Asp Val Leu
    50                  55                  60

His Gly Val Phe Asn Tyr Leu Ala Lys His Asp Val Leu Thr Leu Lys
65                  70                  75                  80

Glu Glu Glu Lys Lys Lys Tyr Tyr Asp Ala Lys Ile Glu Asp Lys Ala
                85                  90                  95

Leu Ile Leu Val Asp Ser Leu Arg Lys Asn Arg Val Ala His Gln Met
            100                 105                 110

Phe Thr Gln Thr Leu Leu Asn Met Asp Gln Lys Ile Thr Ser Val Lys
        115                 120                 125
```

```
Pro Leu Leu Gln Ile Glu Ala Gly Pro Pro Glu Ser Ala Glu Ser Thr
    130                 135                 140

Asn Ile Leu Lys Leu Cys Pro Arg Glu Glu Phe Leu Arg Leu Cys Lys
145                 150                 155                 160

Lys Asn His Asp Glu Ile Tyr Pro Ile Lys Lys Arg Glu Asp Arg Arg
                165                 170                 175

Arg Leu Ala Leu Ile Ile Cys Asn Thr Lys Phe Asp His Leu Pro Ala
            180                 185                 190

Arg Asn Gly Ala His Tyr Asp Ile Val Gly Met Lys Arg Leu Leu Gln
        195                 200                 205

Gly Leu Gly Tyr Thr Val Val Asp Glu Lys Asn Leu Thr Ala Arg Asp
    210                 215                 220

Met Glu Ser Val Leu Arg Ala Phe Ala Ala Arg Pro Glu His Lys Ser
225                 230                 235                 240

Ser Asp Ser Thr Phe Leu Val Leu Met Ser His Gly Ile Leu Glu Gly
                245                 250                 255

Ile Cys Gly Thr Ala His Lys Lys Lys Lys Pro Asp Val Leu Leu Tyr
            260                 265                 270

Asp Thr Ile Phe Gln Ile Phe Asn Asn Arg Asn Cys Leu Ser Leu Lys
        275                 280                 285

Asp Lys Pro Lys Val Ile Ile Val Gln Ala Cys Arg Gly Glu Lys His
    290                 295                 300

Gly Glu Leu Trp Val Arg Asp Ser Pro Ala Ser Leu Ala Val Ile Ser
305                 310                 315                 320

Ser Gln Ser Ser Glu Asn Leu Glu Ala Asp Ser Val Cys Lys Ile His
                325                 330                 335

Glu Glu Lys Asp Phe Ile Ala Phe Cys Ser Ser Thr Pro His Asn Val
            340                 345                 350

Ser Trp Arg Asp Arg Thr Arg Gly Ser Ile Phe Ile Thr Glu Leu Ile
        355                 360                 365

Thr Cys Phe Gln Lys Tyr Ser Cys Cys Cys His Leu Met Glu Ile Phe
    370                 375                 380

Arg Lys Val Gln Lys Ser Phe Glu Val Pro Gln Ala Lys Ala Gln Met
385                 390                 395                 400

Pro Thr Ile Glu Arg Ala Thr Leu Thr Arg Asp Phe Tyr Leu Phe Pro
                405                 410                 415

Gly Asn
```

<210> 84
<211> 419
<212> PRT
<213> Mouse

<400> 84
Met Ala Ala Arg Arg Thr His Glu Arg Asp Pro Ile Tyr Lys Ile Lys
1 5 10 15

Gly Leu Ala Lys Asp Met Leu Asp Gly Val Phe Asp Asp Leu Val Glu
20 25 30

Lys Asn Val Leu Asn Gly Asp Glu Leu Leu Lys Ile Gly Glu Ser Ala
35 40 45

Ser Phe Ile Leu Asn Lys Ala Glu Asn Leu Val Glu Asn Phe Leu Glu
50 55 60

Lys Thr Asp Met Ala Gly Lys Ile Phe Ala Gly His Ile Ala Asn Ser
65 70 75 80

Gln Glu Gln Leu Ser Leu Gln Phe Ser Asn Asp Glu Asp Asp Gly Pro
85 90 95

Gln Lys Ile Cys Thr Pro Ser Ser Pro Ser Glu Ser Lys Arg Lys Val
100 105 110

Glu Asp Asp Glu Met Glu Val Asn Ala Gly Leu Ala His Glu Ser His
115 120 125

Leu Met Leu Thr Ala Pro His Gly Leu Gln Ser Ser Glu Val Gln Asp
130 135 140

Thr Leu Lys Leu Cys Pro Arg Asp Gln Phe Cys Lys Ile Lys Thr Glu
145 150 155 160

Arg Ala Lys Glu Ile Tyr Pro Val Met Glu Lys Glu Gly Arg Thr Arg
165 170 175

Leu Ala Leu Ile Ile Cys Asn Lys Lys Phe Asp Tyr Leu Phe Asp Arg
180 185 190

Asp Asn Ala Asp Thr Asp Ile Leu Asn Met Gln Glu Leu Leu Glu Asn
195 200 205

Leu Gly Tyr Ser Val Val Leu Lys Glu Asn Leu Thr Ala Gln Glu Met
210 215 220

Glu Thr Glu Leu Met Gln Phe Ala Gly Arg Pro Glu His Gln Ser Ser
225 230 235 240

Asp Ser Thr Phe Leu Val Phe Met Ser His Gly Ile Leu Glu Gly Ile
245 250 255

Cys Gly Val Lys His Arg Asn Lys Lys Pro Asp Val Leu His Asp Asp
260 265 270

Thr Ile Phe Lys Ile Phe Asn Asn Ser Asn Cys Arg Ser Leu Arg Asn
275 280 285

Lys Pro Lys Ile Leu Ile Met Gln Ala Cys Arg Gly Arg Tyr Asn Gly
290 295 300

Thr Ile Trp Val Ser Thr Asn Lys Gly Ile Ala Thr Ala Asp Thr Asp
305 310 315 320

Glu Glu Arg Val Leu Ser Cys Lys Trp Asn Asn Ser Ile Thr Lys Ala

```
                  325                 330                 335

His Val Glu Thr Asp Phe Ile Ala Phe Lys Ser Ser Thr Pro His Asn
              340                 345                 350

Ile Ser Trp Lys Val Gly Lys Thr Gly Ser Leu Phe Ile Ser Lys Leu
          355                 360                 365

Ile Asp Cys Phe Lys Lys Tyr Cys Trp Cys Tyr His Leu Glu Glu Ile
      370                 375                 380

Phe Arg Lys Val Gln His Ser Phe Glu Val Pro Gly Glu Leu Thr Gln
385                 390                 395                 400

Met Pro Thr Ile Glu Arg Val Ser Met Thr Arg Tyr Phe Tyr Leu Phe
                  405                 410                 415

Pro Gly Asn
```

<210> 85
<211> 373
<212> PRT
<213> Mouse

<400> 85

```
Met Ala Glu Asn Lys His Pro Asp Lys Pro Leu Lys Val Leu Glu Gln
1               5                   10                  15

Leu Gly Lys Glu Val Leu Thr Glu Tyr Leu Glu Lys Leu Val Gln Ser
            20                  25                  30

Asn Val Leu Lys Leu Lys Glu Glu Asp Lys Gln Lys Phe Asn Asn Ala
        35                  40                  45

Glu Arg Ser Asp Lys Arg Trp Val Phe Val Asp Ala Met Lys Lys Lys
    50                  55                  60

His Ser Lys Val Gly Glu Met Leu Leu Gln Thr Phe Phe Ser Val Asp
65                  70                  75                  80

Pro Gly Ser His His Gly Glu Ala Asn Leu Glu Met Glu Glu Pro Glu
                85                  90                  95

Glu Ser Leu Asn Thr Leu Lys Leu Cys Ser Pro Glu Glu Phe Thr Arg
            100                 105                 110

Leu Cys Arg Glu Lys Thr Gln Glu Ile Tyr Pro Ile Lys Glu Ala Asn
        115                 120                 125

Gly Arg Thr Arg Lys Ala Leu Ile Ile Cys Asn Thr Glu Phe Lys His
    130                 135                 140

Leu Ser Leu Arg Tyr Gly Ala Lys Phe Asp Ile Ile Gly Met Lys Gly
145                 150                 155                 160

Leu Leu Glu Asp Leu Gly Tyr Asp Val Val Val Lys Glu Glu Leu Thr
                165                 170                 175

Ala Glu Gly Met Glu Ser Glu Met Lys Asp Phe Ala Ala Leu Ser Glu
            180                 185                 190

His Gln Thr Ser Asp Ser Thr Phe Leu Val Leu Met Ser His Gly Thr
```

```
        195                 200                 205

Leu His Gly Ile Cys Gly Thr Met His Ser Glu Lys Thr Pro Asp Val
    210                 215                 220

Leu Gln Tyr Asp Thr Ile Tyr Gln Ile Phe Asn Asn Cys His Cys Pro
225                 230                 235                 240

Gly Leu Arg Asp Lys Pro Lys Val Ile Ile Val Gln Ala Cys Arg Gly
                245                 250                 255

Gly Asn Ser Gly Glu Met Trp Ile Arg Glu Ser Ser Lys Pro Gln Leu
            260                 265                 270

Cys Arg Gly Val Asp Leu Pro Arg Asn Met Glu Ala Asp Ala Val Lys
        275                 280                 285

Leu Ser His Val Glu Lys Asp Phe Ile Ala Phe Tyr Ser Thr Thr Pro
    290                 295                 300

His His Leu Ser Tyr Arg Asp Lys Thr Gly Gly Ser Tyr Phe Ile Thr
305                 310                 315                 320

Arg Leu Ile Ser Cys Phe Arg Lys His Ala Cys Ser Cys His Leu Phe
                325                 330                 335

Asp Ile Phe Leu Lys Val Gln Gln Ser Phe Glu Lys Ala Ser Ile His
            340                 345                 350

Ser Gln Met Pro Thr Ile Asp Arg Ala Thr Leu Thr Arg Tyr Phe Tyr
        355                 360                 365

Leu Phe Pro Gly Asn
    370
```

<210> 86
<211> 29
<212> DNA
<213> Primer

<400> 86
ccggatccta attcccagga aagagatac 29

<210> 87
<211> 21
<212> DNA
<213> Primer

<400> 87
gcccaaccca gtggcaagtt a 21

<210> 88
<211> 24
<212> DNA
<213> Primer

<400> 88
gctttaactt gccactgggt tggg 24

<210> 89
<211> 34
<212> DNA
<213> Primer

<400> 89
ttcaattctt tgttgcgcat gttgagggcc aggc 34

<210> 90
<211> 25
<212> DNA
<213> Primer

<400> 90
gtagatctcg catccccaaa aggtc 25

<210> 91
<211> 29
<212> DNA
<213> Primer

<400> 91
gggatcccat ggctgatgag aaaccatcc 29

<210> 92
<211> 31
<212> DNA
<213> Primer

<400> 92
cggatccctc agctcttctg gaaatccagg g 31

<210> 93
<211> 35
<212> DNA
<213> Primer

<400> 93
gggatccgga agccatggct gatgagaaac catcc 35

<210> 94
<211> 36
<212> DNA
<213> Primer

<400> 94
ggtgtttatg tcacatggca tcctgaatgg aatctg 36

<210> 95
<211> 36
<212> DNA
<213> Primer

<400> 95
cagattccat tcaggatgcc atgtgacata aacacc 36

<210> 96
<211> 29
<212> DNA
<213> Primer

<400> 96
cacggatccc gccgccatgg cagctcttc 29

<210> 97
<211> 435
<212> PRT
<213> Homo sapiens

<400> 97
Met Ala Ala Asp Arg Gly Arg Arg Ile Leu Gly Val Cys Gly Met His
1 5 10 15

Pro His His Gln Glu Thr Leu Lys Lys Asn Arg Val Val Leu Ala Lys
20 25 30

Gln Leu Leu Leu Ser Glu Leu Leu Glu His Leu Leu Glu Lys Asp Ile
35 40 45

Ile Thr Leu Glu Met Arg Glu Leu Ile Gln Ala Lys Val Gly Ser Phe
50 55 60

Ser Gln Asn Val Glu Leu Leu Asn Leu Leu Pro Lys Arg Gly Pro Gln
65 70 75 80

Ala Phe Asp Ala Phe Cys Glu Ala Leu Arg Glu Thr Lys Gln Gly His
85 90 95

Leu Glu Asp Met Leu Leu Thr Thr Leu Ser Gly Leu Gln His Val Leu
100 105 110

Pro Pro Leu Ser Cys Asp Tyr Asp Leu Ser Leu Pro Phe Pro Val Cys
115 120 125

Glu Ser Cys Pro Leu Tyr Lys Lys Leu Arg Leu Ser Thr Asp Thr Val
130 135 140

Glu His Ser Leu Asp Asn Lys Asp Gly Pro Val Cys Leu Gln Val Lys
145 150 155 160

Pro Cys Thr Pro Glu Phe Tyr Gln Thr His Phe Gln Leu Ala Tyr Arg
165 170 175

Leu Gln Ser Arg Pro Arg Gly Leu Ala Leu Val Leu Ser Asn Val His
180 185 190

Phe Thr Gly Glu Lys Glu Leu Glu Phe Arg Ser Gly Gly Asp Val Asp
195 200 205

His Ser Thr Leu Val Thr Leu Phe Lys Leu Leu Gly Tyr Asp Val His
210 215 220

Val Leu Cys Asp Gln Thr Ala Gln Glu Met Gln Glu Lys Leu Gln Asn
225 230 235 240

Phe Ala Gln Leu Pro Ala His Arg Val Thr Asp Ser Cys Ile Val Ala
245 250 255

```
Leu Leu Ser His Gly Val Glu Gly Ala Ile Tyr Gly Val Asp Gly Lys
            260                 265                 270

Leu Leu Gln Leu Gln Glu Val Phe Gln Leu Phe Asp Asn Ala Asn Cys
        275                 280                 285

Pro Ser Leu Gln Asn Lys Pro Lys Met Phe Phe Ile Gln Ala Cys Arg
    290                 295                 300

Gly Asp Glu Thr Asp Arg Gly Val Asp Gln Gln Asp Gly Lys Asn His
305                 310                 315                 320

Ala Gly Ser Pro Gly Cys Glu Glu Ser Asp Ala Gly Lys Glu Lys Leu
                325                 330                 335

Pro Lys Met Arg Leu Pro Thr Arg Ser Asp Met Ile Cys Gly Tyr Ala
            340                 345                 350

Cys Leu Lys Gly Thr Ala Ala Met Arg Asn Thr Lys Arg Gly Ser Trp
        355                 360                 365

Tyr Ile Glu Ala Leu Ala Gln Val Phe Ser Glu Arg Ala Cys Asp Met
    370                 375                 380

His Val Ala Asp Met Leu Val Lys Val Asn Ala Leu Ile Lys Asp Arg
385                 390                 395                 400

Glu Gly Tyr Ala Pro Gly Thr Glu Phe His Arg Cys Lys Glu Met Ser
                405                 410                 415

Glu Tyr Cys Ser Thr Leu Cys Arg His Leu Tyr Leu Phe Pro Gly His
            420                 425                 430

Pro Pro Thr
        435

<210>  98
<211>  277
<212>  PRT
<213>  Homo sapiens

<400>  98
Met Glu Asn Thr Glu Asn Ser Val Asp Ser Lys Ser Ile Lys Asn Leu
1               5                   10                  15

Glu Pro Lys Ile Ile His Gly Ser Glu Ser Met Asp Ser Gly Ile Ser
            20                  25                  30

Leu Asp Asn Ser Tyr Lys Met Asp Tyr Pro Glu Met Gly Leu Cys Ile
        35                  40                  45

Ile Ile Asn Asn Lys Asn Phe His Lys Ser Thr Gly Met Thr Ser Arg
    50                  55                  60

Ser Gly Thr Asp Val Asp Ala Ala Asn Leu Arg Glu Thr Phe Arg Asn
65                  70                  75                  80

Leu Lys Tyr Glu Val Arg Asn Lys Asn Asp Leu Thr Arg Glu Glu Ile
                85                  90                  95

Val Glu Leu Met Arg Asp Val Ser Lys Glu Asp His Ser Lys Arg Ser
            100                 105                 110
```

```
Ser Phe Val Cys Val Leu Leu Ser His Gly Glu Glu Gly Ile Ile Phe
        115                 120                 125

Gly Thr Asn Gly Pro Val Asp Leu Lys Lys Ile Thr Asn Phe Phe Arg
    130                 135                 140

Gly Asp Arg Cys Arg Ser Leu Thr Gly Lys Pro Lys Leu Phe Ile Ile
145                 150                 155                 160

Gln Ala Cys Arg Gly Thr Glu Leu Asp Cys Gly Ile Glu Thr Asp Ser
                165                 170                 175

Gly Val Asp Asp Asp Met Ala Cys His Lys Ile Pro Val Asp Ala Asp
            180                 185                 190

Phe Leu Tyr Ala Tyr Ser Thr Ala Pro Gly Tyr Tyr Ser Trp Arg Asn
        195                 200                 205

Ser Lys Asp Gly Ser Trp Phe Ile Gln Ser Leu Cys Ala Met Leu Lys
    210                 215                 220

Gln Tyr Ala Asp Lys Leu Glu Phe Met His Ile Leu Thr Arg Val Asn
225                 230                 235                 240

Arg Lys Val Ala Thr Glu Phe Glu Ser Phe Ser Phe Asp Ala Thr Phe
                245                 250                 255

His Ala Lys Lys Gln Ile Pro Cys Ile Val Ser Met Leu Thr Lys Glu
            260                 265                 270

Leu Tyr Phe Tyr His
        275

<210>  99
<211>  293
<212>  PRT
<213>  Homo sapiens

<400>  99
Met Ser Ser Ala Ser Gly Leu Arg Arg Gly His Pro Ala Gly Gly Glu
1                   5                   10                  15

Glu Asn Met Thr Glu Thr Asp Ala Phe Tyr Lys Arg Glu Met Phe Asp
            20                  25                  30

Pro Ala Glu Lys Tyr Lys Met Asp His Arg Arg Arg Gly Ile Ala Leu
        35                  40                  45

Ile Phe Asn His Glu Arg Phe Phe Trp His Leu Thr Leu Pro Glu Arg
    50                  55                  60

Arg Arg Thr Cys Ala Asp Arg Asp Asn Leu Thr Arg Arg Phe Ser Asp
65                  70                  75                  80

Leu Gly Phe Glu Val Lys Cys Phe Asn Asp Leu Lys Ala Glu Glu Leu
                85                  90                  95

Leu Leu Lys Ile His Glu Val Ser Thr Val Ser His Ala Asp Ala Asp
            100                 105                 110

Cys Phe Val Cys Val Phe Leu Ser His Gly Glu Gly Asn His Ile Tyr
        115                 120                 125
```

```
Ala Tyr Asp Ala Lys Ile Glu Ile Gln Thr Leu Thr Gly Leu Phe Lys
    130                 135                 140

Gly Asp Lys Cys His Ser Leu Val Gly Lys Pro Lys Ile Phe Ile Ile
145                 150                 155                 160

Gln Ala Cys Arg Gly Asn Gln His Asp Val Pro Val Ile Pro Leu Asp
                165                 170                 175

Val Val Asp Asn Gln Thr Glu Lys Leu Asp Thr Asn Ile Thr Glu Val
            180                 185                 190

Asp Ala Ala Ser Val Tyr Thr Leu Pro Ala Gly Ala Asp Phe Leu Met
        195                 200                 205

Cys Tyr Ser Val Ala Glu Gly Tyr Tyr Ser His Arg Glu Thr Val Asn
    210                 215                 220

Gly Ser Trp Tyr Ile Gln Asp Leu Cys Glu Met Leu Gly Lys Tyr Gly
225                 230                 235                 240

Ser Ser Leu Glu Phe Thr Glu Leu Leu Thr Leu Val Asn Arg Lys Val
                245                 250                 255

Ser Gln Arg Arg Val Asp Phe Cys Lys Asp Pro Ser Ala Ile Gly Lys
            260                 265                 270

Lys Gln Val Pro Cys Phe Ala Ser Met Leu Thr Lys Lys Leu His Phe
        275                 280                 285

Phe Pro Lys Ser Asn
    290

<210>  100
<211>  303
<212>  PRT
<213>  Homo sapiens

<400>  100
Met Ala Asp Asp Gln Gly Cys Ile Glu Glu Gln Gly Val Glu Asp Ser
1               5                   10                  15

Ala Asn Glu Asp Ser Val Asp Ala Lys Pro Asp Arg Ser Ser Phe Val
            20                  25                  30

Pro Ser Leu Phe Ser Lys Lys Lys Lys Asn Val Thr Met Arg Ser Ile
        35                  40                  45

Lys Thr Thr Arg Asp Arg Val Pro Thr Tyr Gln Tyr Asn Met Asn Phe
    50                  55                  60

Glu Lys Leu Gly Lys Cys Ile Ile Ile Asn Asn Lys Asn Phe Asp Lys
65                  70                  75                  80

Val Thr Gly Met Gly Val Arg Asn Gly Thr Asp Lys Asp Ala Glu Ala
                85                  90                  95

Leu Phe Lys Cys Phe Arg Ser Leu Gly Phe Asp Val Ile Val Tyr Asn
            100                 105                 110

Asp Cys Ser Cys Ala Lys Met Gln Asp Leu Leu Lys Lys Ala Ser Glu
        115                 120                 125
```

```
Glu Asp His Thr Asn Ala Ala Cys Phe Ala Cys Ile Leu Leu Ser His
    130                 135                 140

Gly Glu Glu Asn Val Ile Tyr Gly Lys Asp Gly Val Thr Pro Ile Lys
145                 150                 155                 160

Asp Leu Thr Ala His Phe Arg Gly Asp Arg Cys Lys Thr Leu Leu Glu
                165                 170                 175

Lys Pro Lys Leu Phe Phe Ile Gln Ala Cys Arg Gly Thr Glu Leu Asp
            180                 185                 190

Asp Gly Ile Gln Ala Asp Ser Gly Pro Ile Asn Asp Thr Asp Ala Asn
        195                 200                 205

Pro Arg Tyr Lys Ile Pro Val Glu Ala Asp Phe Leu Phe Ala Tyr Ser
    210                 215                 220

Thr Val Pro Gly Tyr Tyr Ser Trp Arg Ser Pro Gly Arg Gly Ser Trp
225                 230                 235                 240

Phe Val Gln Ala Leu Cys Ser Ile Leu Glu Glu His Gly Lys Asp Leu
                245                 250                 255

Glu Ile Met Gln Ile Leu Thr Arg Val Asn Asp Arg Val Ala Arg His
            260                 265                 270

Phe Glu Ser Gln Ser Asp Asp Pro His Phe His Glu Lys Lys Gln Ile
        275                 280                 285

Pro Cys Val Val Ser Met Leu Thr Lys Glu Leu Tyr Phe Ser Gln
    290                 295                 300

<210>  101
<211>  479
<212>  PRT
<213>  Homo sapiens

<400>  101
Met Asp Phe Ser Arg Asn Leu Tyr Asp Ile Gly Glu Gln Leu Asp Ser
1               5                   10                  15

Glu Asp Leu Ala Ser Leu Lys Phe Leu Ser Leu Asp Tyr Ile Pro Gln
            20                  25                  30

Arg Lys Gln Glu Pro Ile Lys Asp Ala Leu Met Leu Phe Gln Arg Leu
        35                  40                  45

Gln Glu Lys Arg Met Leu Glu Glu Ser Asn Leu Ser Phe Leu Lys Glu
    50                  55                  60

Leu Leu Phe Arg Ile Asn Arg Leu Asp Leu Leu Ile Thr Tyr Leu Asn
65                  70                  75                  80

Thr Arg Lys Glu Glu Met Glu Arg Glu Leu Gln Thr Pro Gly Arg Ala
                85                  90                  95

Gln Ile Ser Ala Tyr Arg Val Met Leu Tyr Gln Ile Ser Glu Glu Val
            100                 105                 110

Ser Arg Ser Glu Leu Arg Ser Phe Lys Phe Leu Leu Gln Glu Glu Ile
        115                 120                 125
```

```
Ser Lys Cys Lys Leu Asp Asp Asp Met Asn Leu Leu Asp Ile Phe Ile
    130                 135                 140

Glu Met Glu Lys Arg Val Ile Leu Gly Glu Gly Lys Leu Asp Ile Leu
145                 150                 155                 160

Lys Arg Val Cys Ala Gln Ile Asn Lys Ser Leu Leu Lys Ile Ile Asn
                165                 170                 175

Asp Tyr Glu Glu Phe Ser Lys Glu Arg Ser Ser Ser Leu Glu Gly Ser
            180                 185                 190

Pro Asp Glu Phe Ser Asn Gly Glu Glu Leu Cys Gly Val Met Thr Ile
        195                 200                 205

Ser Asp Ser Pro Arg Glu Gln Asp Ser Glu Ser Gln Thr Leu Asp Lys
    210                 215                 220

Val Tyr Gln Met Lys Ser Lys Pro Arg Gly Tyr Cys Leu Ile Ile Asn
225                 230                 235                 240

Asn His Asn Phe Ala Lys Ala Arg Glu Lys Val Pro Lys Leu His Ser
                245                 250                 255

Ile Arg Asp Arg Asn Gly Thr His Leu Asp Ala Gly Ala Leu Thr Thr
            260                 265                 270

Thr Phe Glu Glu Leu His Phe Glu Ile Lys Pro His Asp Asp Cys Thr
        275                 280                 285

Val Glu Gln Ile Tyr Glu Ile Leu Lys Ile Tyr Gln Leu Met Asp His
    290                 295                 300

Ser Asn Met Asp Cys Phe Ile Cys Cys Ile Leu Ser His Gly Asp Lys
305                 310                 315                 320

Gly Ile Ile Tyr Gly Thr Asp Gly Gln Glu Ala Pro Ile Tyr Glu Leu
                325                 330                 335

Thr Ser Gln Phe Thr Gly Leu Lys Cys Pro Ser Leu Ala Gly Lys Pro
            340                 345                 350

Lys Val Phe Phe Ile Gln Ala Cys Gln Gly Asp Asn Tyr Gln Lys Gly
        355                 360                 365

Ile Pro Val Glu Thr Asp Ser Glu Glu Gln Pro Tyr Leu Glu Met Asp
    370                 375                 380

Leu Ser Ser Pro Gln Thr Arg Tyr Ile Pro Asp Glu Ala Asp Phe Leu
385                 390                 395                 400

Leu Gly Met Ala Thr Val Asn Asn Cys Val Ser Tyr Arg Asn Pro Ala
                405                 410                 415

Glu Gly Thr Trp Tyr Ile Gln Ser Leu Cys Gln Ser Leu Arg Glu Arg
            420                 425                 430

Cys Pro Arg Gly Asp Asp Ile Leu Thr Ile Leu Thr Glu Val Asn Tyr
        435                 440                 445

Glu Val Ser Asn Lys Asp Asp Lys Lys Asn Met Gly Lys Gln Met Pro
    450                 455                 460
```

```
Gln Pro Thr Phe Thr Leu Arg Lys Lys Leu Val Phe Pro Ser Asp
465                 470                 475

<210>  102
<211>  416
<212>  PRT
<213>  Homo sapiens


<400>  102
Met Asp Glu Ala Asp Arg Arg Leu Leu Arg Arg Cys Arg Leu Arg Leu
1               5                  10                  15

Val Glu Glu Leu Gln Val Asp Gln Leu Trp Asp Ala Leu Leu Ser Ser
            20                  25                  30

Glu Leu Phe Arg Pro His Met Ile Glu Asp Ile Gln Arg Ala Gly Ser
        35                  40                  45

Gly Ser Arg Arg Asp Gln Ala Arg Gln Leu Ile Ile Asp Leu Glu Thr
    50                  55                  60

Arg Gly Ser Gln Ala Leu Pro Leu Phe Ile Ser Cys Leu Glu Asp Thr
65                  70                  75                  80

Gly Gln Asp Met Leu Ala Ser Phe Leu Arg Thr Asn Arg Gln Ala Ala
                85                  90                  95

Lys Leu Ser Lys Pro Thr Leu Glu Asn Leu Thr Pro Val Val Leu Arg
            100                 105                 110

Pro Glu Ile Arg Lys Pro Glu Val Leu Arg Pro Glu Thr Pro Arg Pro
        115                 120                 125

Val Asp Ile Gly Ser Gly Gly Phe Gly Asp Val Gly Ala Leu Glu Ser
    130                 135                 140

Leu Arg Gly Asn Ala Asp Leu Ala Tyr Ile Leu Ser Met Glu Pro Cys
145                 150                 155                 160

Gly His Cys Leu Ile Ile Asn Asn Val Asn Phe Cys Arg Glu Ser Gly
                165                 170                 175

Leu Arg Thr Arg Thr Gly Ser Asn Ile Asp Cys Glu Lys Leu Arg Arg
            180                 185                 190

Arg Phe Ser Ser Pro His Phe Met Val Glu Val Lys Gly Asp Leu Thr
        195                 200                 205

Ala Lys Lys Met Val Leu Ala Leu Leu Glu Leu Ala Gln Gln Asp His
    210                 215                 220

Gly Ala Leu Asp Cys Cys Val Val Val Ile Leu Ser His Gly Cys Gln
225                 230                 235                 240

Ala Ser His Leu Gln Phe Pro Gly Ala Val Tyr Gly Thr Asp Gly Cys
                245                 250                 255

Pro Val Ser Val Glu Lys Ile Val Asn Ile Phe Asn Gly Thr Ser Cys
            260                 265                 270

Pro Ser Leu Gly Gly Lys Pro Lys Leu Phe Phe Ile Gln Ala Cys Gly
```

```
        275                 280                 285

Gly Glu Gln Lys Asp His Gly Phe Glu Val Ala Ser Thr Ser Pro Glu
    290                 295                 300

Asp Glu Ser Pro Gly Ser Asn Pro Glu Pro Asp Ala Thr Pro Phe Gln
305                 310                 315                 320

Glu Gly Leu Arg Thr Phe Asp Gln Leu Asp Ala Ile Ser Ser Leu Pro
                325                 330                 335

Thr Pro Ser Asp Ile Phe Val Ser Tyr Ser Thr Phe Pro Gly Phe Val
            340                 345                 350

Ser Trp Arg Asp Pro Lys Ser Gly Ser Trp Tyr Val Glu Thr Leu Asp
        355                 360                 365

Asp Ile Phe Glu Gln Trp Ala His Ser Glu Asp Leu Gln Ser Leu Leu
    370                 375                 380

Leu Arg Val Ala Asn Ala Val Ser Val Lys Gly Ile Tyr Lys Gln Met
385                 390                 395                 400

Pro Gly Cys Phe Asn Phe Leu Arg Lys Lys Leu Phe Phe Lys Thr Ser
                405                 410                 415

<210>  103
<211>  521
<212>  PRT
<213>  Homo sapiens

<400>  103
Met Lys Ser Gln Gly Gln His Trp Tyr Ser Ser Ser Asp Lys Asn Cys
1               5                   10                  15

Lys Val Ser Phe Arg Glu Lys Leu Leu Ile Ile Asp Ser Asn Leu Gly
            20                  25                  30

Val Gln Asp Val Glu Asn Leu Lys Phe Leu Cys Ile Gly Leu Val Pro
        35                  40                  45

Asn Lys Lys Leu Glu Lys Ser Ser Ser Ala Ser Asp Val Phe Glu His
    50                  55                  60

Leu Leu Ala Glu Asp Leu Leu Ser Glu Glu Asp Pro Phe Phe Leu Ala
65                  70                  75                  80

Glu Leu Leu Tyr Ile Ile Arg Gln Lys Lys Leu Leu Gln His Leu Asn
                85                  90                  95

Cys Thr Lys Glu Glu Val Glu Arg Leu Leu Pro Thr Arg Gln Arg Val
            100                 105                 110

Ser Leu Phe Arg Asn Leu Leu Tyr Glu Leu Ser Glu Gly Ile Asp Ser
        115                 120                 125

Glu Asn Leu Lys Asp Met Ile Phe Leu Leu Lys Asp Ser Leu Pro Lys
    130                 135                 140

Thr Glu Met Thr Ser Leu Ser Phe Leu Ala Phe Leu Glu Lys Gln Gly
145                 150                 155                 160

Lys Ile Asp Glu Asp Asn Leu Thr Cys Leu Glu Asp Leu Cys Lys Thr
```

```
                  165                 170                 175

Val Val Pro Lys Leu Leu Arg Asn Ile Glu Lys Tyr Lys Arg Glu Lys
            180                 185                 190

Ala Ile Gln Ile Val Thr Pro Pro Val Asp Lys Glu Ala Glu Ser Tyr
        195                 200                 205

Gln Gly Glu Glu Glu Leu Val Ser Gln Thr Asp Val Lys Thr Phe Leu
    210                 215                 220

Glu Ala Leu Pro Gln Glu Ser Trp Gln Asn Lys His Ala Gly Ser Asn
225                 230                 235                 240

Gly Asn Arg Ala Thr Asn Gly Ala Pro Ser Leu Val Ser Arg Gly Met
                245                 250                 255

Gln Gly Ala Ser Ala Asn Thr Leu Asn Ser Glu Thr Ser Thr Lys Arg
            260                 265                 270

Ala Ala Val Tyr Arg Met Asn Arg Asn His Arg Gly Leu Cys Val Ile
        275                 280                 285

Val Asn Asn His Ser Phe Thr Ser Leu Lys Asp Arg Gln Gly Thr His
    290                 295                 300

Lys Asp Ala Glu Ile Leu Ser His Val Phe Gln Trp Leu Gly Phe Thr
305                 310                 315                 320

Val His Ile His Asn Asn Val Thr Lys Val Glu Met Glu Met Val Leu
                325                 330                 335

Gln Lys Gln Lys Cys Asn Pro Ala His Ala Asp Gly Asp Cys Phe Val
            340                 345                 350

Phe Cys Ile Leu Thr His Gly Arg Phe Gly Ala Val Tyr Ser Ser Asp
        355                 360                 365

Glu Ala Leu Ile Pro Ile Arg Glu Ile Met Ser His Phe Thr Ala Leu
    370                 375                 380

Gln Cys Pro Arg Leu Ala Glu Lys Pro Lys Leu Phe Phe Ile Gln Ala
385                 390                 395                 400

Cys Gln Gly Glu Glu Ile Gln Pro Ser Val Ser Ile Glu Ala Asp Ala
                405                 410                 415

Leu Asn Pro Glu Gln Ala Pro Thr Ser Leu Gln Asp Ser Ile Pro Ala
            420                 425                 430

Glu Ala Asp Phe Leu Leu Gly Leu Ala Thr Val Pro Gly Tyr Val Ser
        435                 440                 445

Phe Arg His Val Glu Glu Gly Ser Trp Tyr Ile Gln Ser Leu Cys Asn
    450                 455                 460

His Leu Lys Lys Leu Val Pro Arg Met Leu Lys Phe Leu Glu Lys Thr
465                 470                 475                 480

Met Glu Ile Arg Gly Arg Lys Arg Thr Val Trp Gly Ala Lys Gln Ile
                485                 490                 495

Ser Ala Thr Ser Leu Pro Thr Ala Ile Ser Ala Gln Thr Pro Arg Pro
```

```
            500                 505                 510

Pro Met Arg Arg Trp Ser Ser Val Ser
        515                 520
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<211> 377
<212> PRT
<213> Homo sapiens

<400> 104

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Met Ala Glu Asp Lys His Asn Lys Asn Pro Leu Lys Met Leu Glu Ser
1               5                  10                  15

Leu Gly Lys Glu Leu Ile Ser Gly Leu Leu Asp Asp Phe Val Glu Lys
            20                  25                  30

Asn Val Leu Lys Leu Glu Glu Glu Glu Lys Lys Lys Ile Tyr Asp Ala
        35                  40                  45

Lys Leu Gln Asp Lys Ala Arg Val Leu Val Asp Ser Ile Arg Gln Lys
    50                  55                  60

Asn Gln Glu Ala Gly Gln Val Phe Val Gln Thr Phe Leu Asn Ile Asp
65                  70                  75                  80

Lys Asn Ser Thr Ser Ile Lys Ala Pro Glu Glu Thr Val Ala Gly Pro
                85                  90                  95

Asp Glu Ser Val Gly Ser Ala Ala Thr Leu Lys Leu Cys Pro His Glu
            100                 105                 110

Glu Phe Leu Lys Leu Cys Lys Glu Arg Ala Gly Glu Ile Tyr Pro Ile
        115                 120                 125

Lys Glu Arg Lys Asp Arg Thr Arg Leu Ala Leu Ile Ile Cys Asn Thr
    130                 135                 140

Glu Phe Asp His Met Pro Pro Arg Asn Gly Ala Ala Leu Asp Ile Leu
145                 150                 155                 160

Gly Met Lys Gln Leu Leu Glu Gly Leu Gly Tyr Thr Val Glu Val Glu
                165                 170                 175

Glu Lys Leu Thr Ala Arg Asp Met Glu Ser Val Leu Trp Lys Phe Ala
            180                 185                 190

Ala Arg Glu Glu His Lys Ser Ser Asp Ser Thr Phe Leu Val Phe Met
        195                 200                 205

Ser His Gly Ile Leu Asp Gly Ile Cys Gly Thr Met His Ser Glu Glu
    210                 215                 220

Glu Pro Asp Val Leu Pro Tyr Asp Thr Ile Phe Arg Thr Phe Asn Asn
225                 230                 235                 240

Arg Asn Cys Leu Ser Leu Lys Asp Lys Pro Lys Val Ile Ile Val Gln
                245                 250                 255

Ala Cys Arg Gly Ala Asn Arg Gly Glu Leu Trp Val Ser Asp Ser Pro
```

```
            260                 265                 270

Pro Ala Leu Ala Asp Ser Phe Ser Gln Ser Ser Glu Asn Leu Glu Glu
        275                 280                 285

Asp Ala Val Tyr Lys Thr His Val Glu Lys Asp Phe Ile Ala Phe Cys
    290                 295                 300

Ser Ser Thr Pro His Asn Val Ser Trp Arg Asp Ile Lys Lys Gly Ser
305                 310                 315                 320

Leu Phe Ile Thr Arg Leu Ile Thr Cys Phe Gln Lys Tyr Ala Trp Cys
                325                 330                 335

Cys His Leu Glu Glu Val Phe Arg Lys Val Gln Gln Ser Phe Glu Lys
            340                 345                 350

Pro Asn Val Lys Ala Gln Met Pro Thr Val Glu Arg Leu Ser Met Thr
        355                 360                 365

Arg Tyr Phe Tyr Leu Phe Pro Gly Asn
    370                 375


<210>  105
<211>  242
<212>  PRT
<213>  Homo sapiens

<400>  105
Met Ser Asn Pro Arg Ser Leu Glu Glu Glu Lys Tyr Asp Met Ser Gly
1               5                   10                  15

Ala Arg Leu Ala Leu Ile Leu Cys Val Thr Lys Ala Arg Glu Gly Ser
            20                  25                  30

Glu Glu Asp Leu Asp Ala Leu Glu His Met Phe Arg Gln Leu Arg Phe
        35                  40                  45

Glu Ser Thr Met Lys Arg Asp Pro Thr Ala Glu Gln Phe Gln Glu Glu
    50                  55                  60

Leu Glu Lys Phe Gln Gln Ala Ile Asp Ser Arg Glu Asp Pro Val Ser
65                  70                  75                  80

Cys Ala Phe Val Val Leu Met Ala His Gly Arg Glu Gly Phe Leu Lys
                85                  90                  95

Gly Glu Asp Gly Glu Met Val Lys Leu Glu Asn Leu Phe Glu Ala Leu
            100                 105                 110

Asn Asn Lys Asn Cys Gln Ala Leu Arg Ala Lys Pro Lys Val Tyr Ile
        115                 120                 125

Ile Gln Ala Cys Arg Gly Glu Gln Arg Asp Pro Gly Glu Thr Val Gly
    130                 135                 140

Gly Asp Glu Ile Val Met Val Ile Lys Asp Ser Pro Gln Thr Ile Pro
145                 150                 155                 160

Thr Tyr Thr Asp Ala Leu His Val Tyr Ser Thr Val Glu Gly Tyr Ile
                165                 170                 175
```

```
Ala Tyr Arg His Asp Gln Lys Gly Ser Cys Phe Ile Gln Thr Leu Val
                180                 185                 190

Asp Val Phe Thr Lys Arg Lys Gly His Ile Leu Glu Leu Leu Thr Glu
        195                 200                 205

Val Thr Arg Arg Met Ala Glu Ala Glu Leu Val Gln Glu Gly Lys Ala
    210                 215                 220

Arg Lys Thr Asn Pro Glu Ile Gln Ser Thr Leu Arg Lys Arg Leu Tyr
225                 230                 235                 240

Leu Gln
```